SIEMENS

Products for Low Voltage Power Distribution

Protection, Switching, Measuring and Monitoring Devices

SENTRON

Catalog Thailand version

Edition May 2014

Related catalogs

Low-Voltage Power Distribution and Electrical Installation Technology LV 10
SENTRON · SIVACON · ALPHA
Protection, Switching, Measuring and Monitoring Devices, Switchboards and Distribution Systems
E86060-K8280-A101-A1-7600

ALPHA FIX LV 52
Terminal Blocks

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DELTA ET D1
Switches and Socket Outlets

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Products for Automation and Drives CA 01
Interactive Catalog, DVD

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Contents

Air circuit breakers · Molded case circuit breakers · Miniature circuit breakers · Residual current protective devices / AFDDs · Fuse systems · Overvoltage protection devices · Switch disconnectors · Switching devices · Transformers, power supply units and socket outlets · Busbar systems · Measuring devices and power monitoring · Monitoring devices · Software · Switchboards · Busbar trunking systems · System cubicles, system lighting and system air-conditioning · Distribution boards · Molded-plastic distribution systems · Spring-loaded terminals

iPo plug-in terminals · iPo installation terminals · Spring-loaded terminals · Combination plug-in terminals · Insulation displacement terminals · Screw terminals · Accessories for terminal blocks

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All products of automation and drives technology and of low-voltage power distribution and electrical installation technology

All products of automation and drives technology and of low-voltage power distribution and electrical installation technology

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www.siemens.com/lowvoltage/technical-support

Siemens LV, version Thailand, May 2014

Products for Low Voltage Power Distribution

Protection, Switching, Measuring and Monitoring Devices

Catalog version Thailand, May 2014

VDE
VERBAND DER ELEKTROTECHNIK
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The products and systems listed in this catalog are developed and manufactured in accordance with a VDE-certified quality management system complying with EN ISO 9001:2000.

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The products contained in this catalog can also be found in the Interactive Catalog CA 01.
Order No.:
E86060-D4001-A510-D3-7600

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Catalog LV - Products for Low Voltage Power Distribution - 2014

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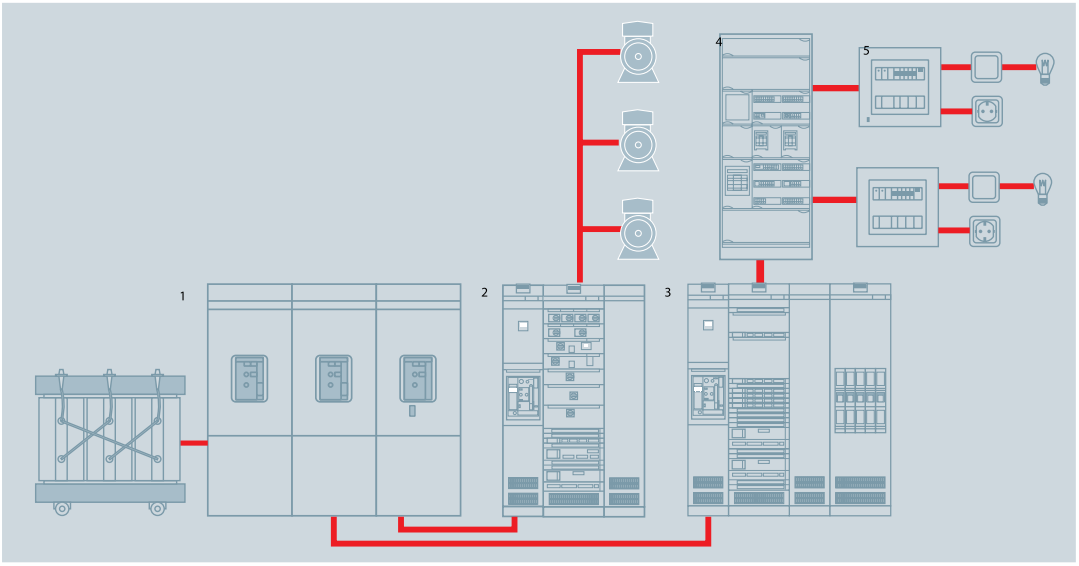


Greater transparency and energy-efficient supply of power in industrial applications and infrastructure

1 Main low-voltage power distribution
2 Motor control center
3 Switchboard
4 Distribution board
5 Small distribution board

Fast and fl exible planning and dimensioning of electrical power distribution systems with SIMARIS software tools and ALPHA SELECT confi guration software.

Systematic approach to power distribution

A comprehensive range of high-performance components enables switchboards and distribution boards to meet any requirements.

SIVACON S8 power distribution boards – safe, flexible and cost-efficient

The SIVACON S8 power distribution board sets new standards in power distribution or as a motor control center (MCC) for industrial applications or infrastructure. The power distribution board system rated up to 7,000 A for easy and integrated power distribution ensures maximum safety for human beings and plants by design verification by verifi cation tests in accordance with IEC 61439-1. The optimized power distribu tion board design offers great versatility.

ALPHA distribution boards – integrated platform structure

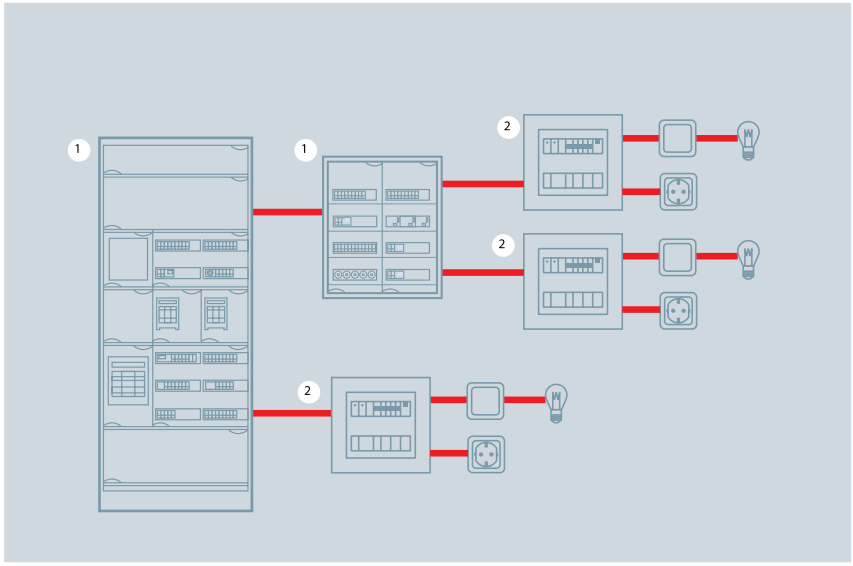
Small, wall or floor-mounted ALPHA distribution boards are all based on a proven system. They comply with all safety regulations and offer reliable quality.
The integrated platform structure gives them great versatility for use in industrial applications, infrastructure and buildings. A range of sub-distribution products is available to meet user needs.

Reliable power distribution dimensioning

A tender process takes place prior to contract award for public or other large buildings. Siemens provides a set of defined specification texts. The software SIMARIS design runs calculations and performs dimensioning for the electrical distribution network based on the structure that has been defined and entry of technical data in accordance with recognized rules of technology and applicable standards.

Completely coordinated components for low-voltage power distribution and electrical installation technology

SENTRON protection device



Power distribution in buildings
1 Distribution boards
2 Small distribution boards

Continuous power distribution from the distribution board to the load using SENTRON protection, switching, measuring and monitoring devices.

Definition of necessary devices and comparison of tripping characteristics

Based on the equipment and the distribution boards needed, the software SIMARIS project determines the system space requirements and helps you define the budget. You generate the technical specifi cations for the entire project with a single click of the mouse.
SIMARIS provides tripping characteristic curves as well as let-through current and let-through energy characteristics.

Planning, configuration and ordering of distribution boards

The free configuration software ALPHA SELECT makes distribution board configuration faster and easier than ever before. The software program covers the complete product portfolio of the electrical installation technology and accompanies you step-by-step through the entire project, from planning to installation. Confi guration errors are virtually impossible thanks to collision tests and configuration rules saved in the program.

Highlight

- Comprehensive portfolio for switch-boards boards, distribution boards and small distribution boards
- Compliance with standards for added safety
- Software tools and comprehensive support for planning and installation of power distribution systems

SENTRON switching devices

SENTRON measuring devices

SENTRON monitoring devices

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We offer comprehensive support, from planning to configuration to operation.

Miniature Circuit Breakers

1/2 **Introduction**

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1/3 5SJ6, 6kA
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5SY and 5SP Miniature Circuit Breakers
1/5 5SY4, 10kA
1/6 5SY5, 10kA and 5SP4, high-current, 10kA

Additional components
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For further technical product information:

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www.siemens.com/lowvoltage/product-support

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Technical specifications

→ Entry List:
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Miniature Circuit Breakers

Introduction

Technical specifications

			5SY4	5SY5	5SP4	5SJ4	5SJ6
Standards			EN 60898-1; EN 60947-2	EN 60898-2	EN 60898-1; EN 60947-2	EN 60898-1	EN 60898-1
Approvals							
Rated voltage U_n		V AC	230/400	230/400	230/400	230/400	230/400
		V DC	---	220/440/ 880[5]	--	--	--
Operational voltage							
	Min.	V AC/DC/pole	24	24	24	24	24
Acc. to EN 60898-1/-2 and EN 60947-2	Max.	V DC/pole	72[4]	250	72	60	60[2]
	Max.	V AC	250/440	250/440	250/440	250/440	250/440
Acc. to UL 1077 and CSA C22.2 No.235	Max.	V AC	480Y/277	--	480Y/277	--	--
Breaking capacity[1]							
• I_{cn} acc. to UEC/EN 60898-1		kA AC	10	10	10	10	6
• I_{cn} acc. to UEC/EN 60898-2		kA AC	10	10	10	--	--
• I_{cn} acc. to UEC/EN 60947-2		kA AC	35 ... 10[1]	35 ... 10[1]	10	--	--
		kA AC	15	15	15		
• Acc. to UL1077 and CSA C22.2 No.235		kA AC	5	--	5		
Insulation coordination							
• Rated insulation voltage		V AC	250/440				
		V DC/pole	--	250	--	250/440	250/440
Pollution degree for overvoltage category			3/III[3]				2/III
Touch protection	Acc. to EN 50274		Yes				
Main switch characteristics	Acc. to EN 60204		Yes			--	--
Handle end position, sealable			Yes				
Degree of protection	Acc. yo EN 60529		IP20 with connected conductors, IP40 in the handle range with distribution cover			IP20	IP20
CFC and silicone-free			Yes				
Mounting							
• Snap-on fixing system			Yes		--		
• Standard mounting rail and screw fixing			--		Yes		
Terminals		±screw (Pozidriv)	2				
• Tunnel terminals at both ends			--		Yes		--
• Combined terminals at both ends			Yes		--		
• Terminal tightening torque		Nm	2.5 ... 3		2.5 ... 3.5		2.5 ... 3
		lb.in	22 ... 26		22 ... 31		--
Conductor cross-sections							
• Solid and stranded		mm^2	0.75 .. 35		4 ... 50		0.75 ... 35
• Finely stranded, with end sleeve		mm^2	0.75 ... 25		1.5 ... 35		0.75 ... 25
• AWG conductors (Cu 60/75 °C $I_n \leq$ 40 A; 60 °C $I_n >$ 40 A)		AWG	14 ... 4		14 ... 2		--
Mains connection							
• AC			Any				
• DC			Any				--
Mounting position			Any				
Service life		Actuations	20000				
On average, with rated load		Actuations	10000 for 5SY5 at 40 A, 50 A and 63 A				--
Ambient temperature		°C	-25 ... +55, max. 95% humidity				
Storage temperature		°C	-40 ... +75				
Resistance to climate	Acc. to IEC 60068-2-30		6 cycles				
Shock	Acc. to IEC 60068-2-27	m/s^2	150 at 11 ms half-sine			--	--
Resistance to vibrations	Acc. to IEC 60068-2-27	m/s^2	50 at 25 ... 150 Hz and 60 at 35 Hz (4 sec)				60 at 10 Hz ... 150 Hz

[1] For further information see Configuration Manual 2014 "Miniature circuit breakers" at: www.siemens.com/lowvoltage/manuals

[2] The operational voltage 60 V DC/pole takes into account a battery charging voltage with a peak value of 72V

[3] 5SY54.. 4-pole, degree of pollution 2 at overvoltage category III.

[4] Exempt: C/D 0.3 A ... 0.5 A

[5] 5SY54.. 4-pole 880 V is not a standardized voltage acc. to EN 60898-1, suitable for max. 1000 V DC, if the four poles are connected in series.

Overview

Triping Characteristic : C according to IEC/EN 60898-1

Rated Voltage : Un 230/400 VAC, Max. 250/440VAC, 60VDC Per Pole

Selection and ordering data

Pole	Mounting Width	Rated Current I_n	Characteristic C Order No.	Basic price per PU (THB)
	MW[1]	A		
1 Pole ; 230/400V	1	1	5SJ6101-7SC	
		2	5SJ6102-7SC	
		3	5SJ6103-7SC	
		4	5SJ6104-7SC	
		6	5SJ6106-7SC	
		10	5SJ6110-7SC	
		16	5SJ6116-7SC	
		20	5SJ6120-7SC	
		25	5SJ6125-7SC	
		32	5SJ6132-7SC	
		40	5SJ6140-7SC	
		50	5SJ6150-7SC	
		63	5SJ6163-7SC	
2 Pole ; 400V	2	1	5SJ6201-7SC	
		2	5SJ6202-7SC	
		3	5SJ6203-7SC	
		4	5SJ6204-7SC	
		6	5SJ6206-7SC	
		10	5SJ6210-7SC	
		16	5SJ6216-7SC	
		20	5SJ6220-7SC	
		25	5SJ6225-7SC	
		32	5SJ6232-7SC	
		40	5SJ6240-7SC	
		50	5SJ6250-7SC	
		63	5SJ6263-7SC	
3 Pole ; 400V	3	1	5SJ6301-7SC	
		2	5SJ6302-7SC	
		3	5SJ6303-7SC	
		4	5SJ6304-7SC	
		6	5SJ6306-7SC	
		10	5SJ6310-7SC	
		16	5SJ6316-7SC	
		20	5SJ6320-7SC	
		25	5SJ6325-7SC	
		32	5SJ6332-7SC	
		40	5SJ6340-7SC	
		50	5SJ6350-7SC	
		63	5SJ6363-7SC	

[1] 1MW (Modular Width =18 mm.)

Miniature Circuit Breakers

5SJ Miniature Circuit Breaker

5SJ4, 10 kA

Overview

Triping Characteristic : C according to IEC/EN 60898-1

Rated Voltage : Un 230/400 VAC, Max. 250/440VAC, 60VDC Per Pole

Non Accessories

Selection and ordering data

	Pole	Mounting Width	Rated Current I_n	Characteristic C Order No.	Basic price per PU (THB)
		MW[1]	A		
	1 Pole	1	1	5SJ4101-7CC20	
			2	5SJ4102-7CC20	
			3	5SJ4103-7CC20	
			4	5SJ4104-7CC20	
			6	5SJ4106-7CC20	
			10	5SJ4110-7CC20	
			16	5SJ4114-7CC20	
			16	5SJ4116-7CC20	
			20	5SJ4120-7CC20	
			25	5SJ4125-7CC20	
			32	5SJ4132-7CC20	
			40	5SJ4140-7CC20	
			50	5SJ4150-7CC20	
			63	5SJ4143-7CC20	
			63	5SJ4163-7CC20	
	2 Pole	2	1	5SJ4201-7CC20	
			2	5SJ4202-7CC20	
			3	5SJ4203-7CC20	
			4	5SJ4204-7CC20	
			6	5SJ4206-7CC20	
			10	5SJ4210-7CC20	
			16	5SJ4214-7CC20	
			16	5SJ4216-7CC20	
			20	5SJ4220-7CC20	
			25	5SJ4225-7CC20	
			32	5SJ4232-7CC20	
			40	5SJ4240-7CC20	
			50	5SJ4250-7CC20	
			63	5SJ4263-7CC20	
	3 Pole	3	1	5SJ4301-7CC20	
			2	5SJ4302-7CC20	
			3	5SJ4303-7CC20	
			4	5SJ4304-7CC20	
			6	5SJ4306-7CC20	
			10	5SJ4310-7CC20	
			16	5SJ4316-7CC20	
			20	5SJ4320-7CC20	
			25	5SJ4325-7CC20	
			32	5SJ4332-7CC20	
			40	5SJ4340-7CC20	
			50	5SJ4350-7CC20	
			63	5SJ4363-7CC20	

[1] 1MW (Modular Width =18 mm.)

Selection and ordering data

	Mounting Width	Rated Current I_n	Characteristic C Order No.	Basic price per PU (THB)
	MW[1]	A		
MCBs 10000 A 1P, 230/400 V AC	1	0.3	5SY4114-7	
		2	5SY4102-7	
		4	5SY4104-7	
		6	5SY4111-7	
		8	5SY4106-7	
		10	5SY4108-7	
		16	5SY4110-7	
		20	5SY4116-7	
		25	5SY4120-7	
		30	5SY4125-7	
		32	5SY4132-7	
		40	5SY4140-7	
		50	5SY4150-7	
		63	5SY4163-7	
		80	5SY4180-7	
2P, 400 V AC	2	0.3	5SY4214-7	
		2	5SY4202-7	
		4	5SY4204-7	
		6	5SY4206-7	
		8	5SY4208-7	
		10	5SY4210-7	
		16	5SY4216-7	
		20	5SY4220-7	
		25	5SY4225-7	
		30	5SY4230-7	
		32	5SY4232-7	
		40	5SY4240-7	
		50	5SY4250-7	
		63	5SY4263-7	
		80	5SY4280-7	
3P, 400 V AC	3	0.3	5SY4314-7	
		2	5SY4302-7	
		4	5SY4304-7	
		6	5SY4306-7	
		8	5SY4308-7	
		10	5SY4310-7	
		16	5SY4316-7	
		20	5SY4320-7	
		25	5SY4325-7	
		30	5SY4330-7	
		32	5SY4332-7	
		40	5SY4340-7	
		50	5SY4350-7	
		63	5SY4363-7	
		80	5SY4380-7	

[1] 1MW (Modular Width =18 mm.)

Miniature Circuit Breakers

5SY and 5SP Miniature Circuit Breaker

5SY5, DC Application, 10 kA

Selection and ordering data

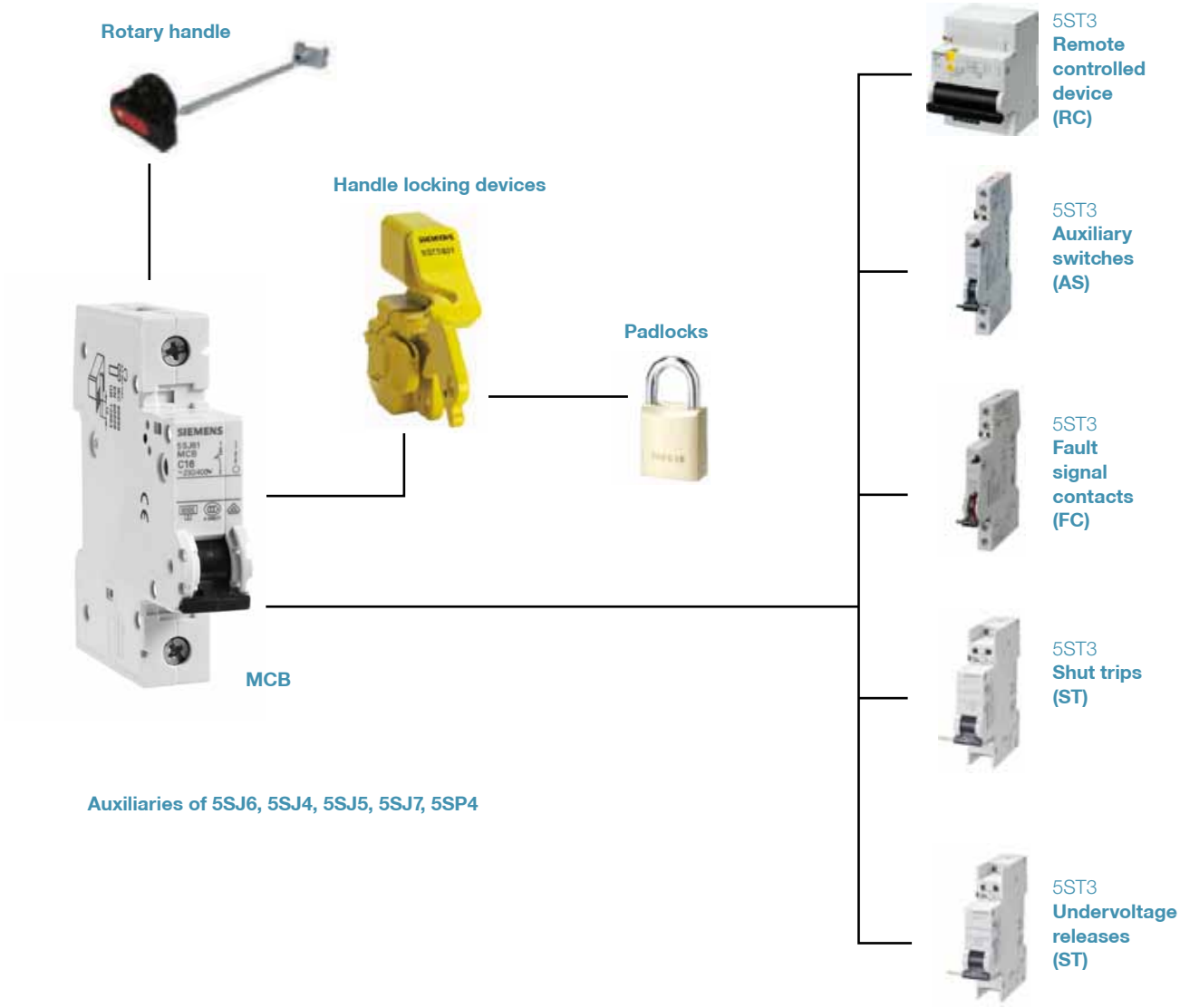
	Mounting Width	Rated Current I_n	Characteristic C Order No.	Basic price per PU (THB)
	MW[1]	A		
MCBs 10000 A, UC 1P, 230/400 V AC 220 V DC	1	0.3 2 4 6 8 10 16 20 25 32 40 50 63	5SY5114-7 5SY5102-7 5SY5104-7 5SY5106-7 5SY5108-7 5SY5110-7 5SY5116-7 5SY5120-7 5SY5125-7 5SY5132-7 5SY5140-7 5SY5150-7 5SY5163-7	
2P, 400 V AC, 440 V DC 220 V DC	2	0.3 2 4 6 8 10 16 20 25 32 40 50 63	5SY5214-7 5SY5202-7 5SY5204-7 5SY5206-7 5SY5208-7 5SY5210-7 5SY5216-7 5SY5220-7 5SY5225-7 5SY5232-7 5SY5240-7 5SY5250-7 5SY5263-7	

5SP4, high-current, 10 kA

	Mounting Width	Rated Current I_n	Characteristic C Order No.	Basic price per PU (THB)
	MW[1]	A		
MCBs 10000 A, high current 1P, 230/400 V AC	1.5	80 100 125	5SP4180-7 5SP4191-7 5SP4192-7	
2P, 400 V AC	3	80 100 125	5SP4280-7 5SP4291-7 5SP4292-7	
3P, 400 V AC	4.5	80 100 125	5SP4380-7 5SP4391-7 5SP4392-7	

[1] 1MW (Modular Width =18 mm.)

Additional components diagram for MCB



The chart shows which additional components can be mounted on either the right or the left

5SM3 →	MCB ←	RC ←	ST/UR ←	OV ←	FC ←	AS
5SM3 →	MCB ←	RC ←	ST/UR ←	OV ←	AS ←	FC
5SM3 →	MCB ←	RC ←	ST/UR ←	OV ←	AS ←	AS

Remark: 5SP4 could not combine with RCD

Miniature Circuit Breakers

Additional Components

Electrical components

Selection and ordering data

		Rated Current U_n	Mounting Width	Order No.	Basic price per PU (THB)
		V	MW[1]		
	Auxiliary switches (AS)* 1 NO + 1 NC 2 NO 2 NC		0.5	5ST3010 - 0CC 5ST3011 - 0CC 5ST3012 - 0CC	
	Fault signal contacts (FC)* 1 NO + 1 NC 2 NO 2 NC		0.5	5ST3020 5ST3021 5ST3022	
	Undervoltage releases (UR)* With integrated auxiliary switch	230 AC 110 DC 24 DC	1	5ST3040 5ST3041 5ST3042	
	Shun trips (units)*	110 ... 415 V AC 24 ... 60 V AC/DC	1 1	5ST3030 5ST3031	
	Remote controlled mechanisms (RC)*	230 AC	3.5	5ST3030	
	Handle locking devices* Seatable to prevent undesired mechanical ON/OFF switching For padlock with max. 3 mm shackle			5ST3801	
	Padlocks For 5ST3 801 handle locking devices			5ST3802	
	Locking devices For 5SP and 5SY miniature circuit breakers comprising 5ST3 801 handle locking device and 5ST3 802 padlock			5ST3803	
	Rotary handle length of operate level : 280 mm. installation depth : Max 400 mm. adjustable			5ST3814 - 0CC	

1) 1MW (Modular Width = 18 mm.)

* Not suitable use for 5SJ6 ... SC

Residual Current Protective Devices

5SM3 RCCBs
2/2 Introduction
2/3 5SM3 RCCBs, Type AC, instantaneous
2/4 Addition components

2/5 Introduction

5SU9 RCBOs
2/6 5SU9 RCBOs, Type AC, instantaneous

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Residual Current Protective Devices

5SM3 RCCBs

Overview

RCCBs are used in all systems up to 240/415 V AC. Devices of type AC trip in the event of sinusoidal AC residual currents.

RCCBs with a rated residual current of maximum 30 mA are used for personnel, material and fire protection, as well as for protection against direct contact.

RCCBs with 10 mA are primarily used in areas that represent an increased risk for personnel.

RCCBs with current of maximum 300 mA are used as preventive fire protection in case of insulation faults.

RCCBs with a rated residual current of 100 mA are primarily used outside Europe.

Technical specifications

			Instantaneous
Standards			IEC/EN 61008-1 (VDE 0664-10); IEC/EN 61008-2-1 (VDE 0664-11); IEC/EN 61543 (VDE 0664-30); IEC/EN 62423 (VDE 0664-40)
Surge current withstand capability			
• Type A with current waveform 8/20 µs	Acc. to DIN VDE 0432-2	kA	> 1
• Type F with current waveform 8/20 µs	Acc. to DIN VDE 0432-2	kA	--
Minimum operational voltage for test function operation		V AC	100
Insulation coordination			
• Overvoltage category			III
Pollution degree			2
Terminal conductor cross-sections			
• For 2 MW	At I_n = 16 A, 25 A, 40 A	mm^2	1.0 ... 16
	At I_n = 100 A, 125 A	mm^2	1.5 ... 50
• For 2.5 MW	At I_n = 63 A, 80 A	mm^2	1.5 ... 25
• For 4 MW	At I_n = 25 A, 40 A, 63 A, 80 A	mm^2	1.5 ... 25
	At I_n = 125 A	mm^2	2.5 ... 50
Terminal tightening torque			
• Up to I_n 80 A		Nm	2.5 ... 3.0
• at I_n = 100 A, 125 A		Nm	3.0 ... 3.5
Mains connection			Top or bottom
Mounting position			Any
Degree of protection	Acc. to EN 60529 (VDE 0470-1)		IP20, if the distribution board is installed, with connected conductors
Touch protection	Acc. to EN 50274 (VDE 0660-514)		Finger and back-of-hand safe
Service life	Test cycle acc. to IEC/EN 61008	Switching cycles	> 10000
Storage temperature		°C	-40 ... +75
Ambient temperature		°C	-25 ... +45, marked with -25
Resistance to climate	acc. to IEC 60068-2-30		28 cycles (55 °C; 95 % rel. air humidity)
CFC and silicone-free			Yes

Selection and ordering data

	Rated residual $I_{\Delta n}$	Rated current I_n	Max. Permissble short-circuit back-up fuse	Mounting Width	Order No.	Basic price per PU (THB)
	mA	A	A	MW[1]		
RCCBs, type AC, instantaneous						
	125 … 230 V AC ; 50 … 60Hz N connection, right 2-Pole					
up to 40 A	10	16	63	2	5SM3111-0	
	30	25	63	2	5SM3312-0	
		40			5SM3314-0	
		63	100	2.5	5SM3316-0	
		80			5SM3317-0	
		100	125	2	5SM3318-0KK	
		125			5SM3315-0KK	
63 A and 80 A	100	25	63	2	5SM3412-0	
		40			5SM3414-0	
		63	100	2.5	5SM3416-0	
		80			5SM3417-0	
		100	125	2	5SM3418-0KK	
		125			5SM3415-0KK	
	230 … 400 V AC ; 50 … 60Hz N connection, right 4-pole					
up to 80 A	30	25	100	4	5SM3342-0	
		40			5SM3344-0	
		63			5SM3346-0	
		80			5SM3347-0	
		100			5SM3348-0	
		125	125		5SM3345-0	
	100	25	100		5SM3442-0	
		40			5SM3444-0	
		63			5SM3446-0	
		100			5SM3448-0	
		125	125		5SM3445-0	
100A and 125 A	300	25	100		5SM3642-0	
		40			5SM3644-0	
		63			5SM3646-0	
		80			5SM3647-0	
		100			5SM3648-0	
		125	125		5SM3645-0	

[1] 1MW (Modular Width =18 mm.)

Residual Current Protective Devices

5SM3 RCCBs

Addition components

Selection and ordering data

	Version	Mounting Width MW[1)]	Order No.	Basic price per PU (THB)
	Auxiliary switch (AS) for 5SM3 RCCB up to 80A			
	1 NO + 1 NC	0.5	5SW3300	
	2 NC	0.5	5SW3301	
	2 NO	0.5	5SW3302	
	Auxiliary switch (AS) for 5SM3 RCCB up to 100 … 125A, 4P			
	1 NO + 1 NC	0.5	5SW3330	
	Remote controlled mechanisms (RC) for 5SM3 RCCB up to 80A			
	Rated voltage Un = 230V AC	3.5	5ST3051	
	Leakage current measurement devices			
	Rated voltage Un = 500V AC; 50 … 60 Hz Rated residual current IΔn = 0 … 300mA Rated current In = 63A	4	5SM1930-0	
	Covers for connection terminals			
	For RCCB up to 80A,	2	5SW3010	
	sealable (2 unit in plastic bag)	2.5	5SW3011	
		4	5SW3008	
	Locking devices			
	For RCCBs up to 80A, sealable and lockable 4.5mm lock hasp diameter		5SW3303	
	Padlocks			
	For 5SW3303 locking device		5ST3802	
	Locking devices with padlock			
	Comprising 5SW3303 locking device and 5ST3802 padlock		5SW3312	

Overview

RCBOs are a combination of an RCCB and a miniature circuit breaker in a compact design for personnel, fire and line protection. For personnel protection and fire protection, the residual current part of the type AC trips in the event of sinusoidal AC residual currents. RCBOs with a rated residual current of maximum 30 mA are used for personnel, material and fire protection, as well as for protection against direct contact. RCBOs with 10 mA are primarily used in areas that represent an increased risk for personnel and in the outdoor installations of residential buildings.

Assignment to each individual branch circuit helps prevent the undesired tripping of fault-free circuits induced by the accumulation of operation-related leakage currents or by transient current pulses during switching operations.

Technical specifications

		5SU9
Standards		IEC 61009/GB 16917
Rated voltage	V AC	230
Rated frequency	Hz	50 ... 60
Rated currents	A	6 to 63
Rated residual currents	mA	10, 30
Rated breaking capacity	kA	6/10
Current limition class		3
Residual current category		AC
Tripping characteristic		C
Operating environment temperature	°C	- 25 to +45, maximum relative humidity 95%
Machanical life	cycle	20000
Installation		Snapped on 35mm rail, 2 modular width (36mm)
Surge current withstand	us	8/10

Residual Current Protective Devices

5SU9 RCBOs

RCBOs, Type AC

Selection and ordering data

Pole	Rated residual $I_{\Delta n}$	Rated current I_n	Mounting Width	Order No.	Basic price per PU (THB)
	mA	A	MW[1]		
RCBOs, Type AC, instantaneous					
1P+N; 230 V AC, Without overvoltage protection					
6 kA					
	10	6	2	5SU9156-7KK06	
		10		5SU9156-7KK10	
		16		5SU9156-7KK16	
		20		5SU9156-7KK20	
		25		5SU9156-7KK25	
		32		5SU9156-7KK32	
		40		5SU9156-7KK40	
		50		5SU9156-7KK50	
		63		5SU9156-7KK63	
1P+N; 230 V AC, Without overvoltage protection					
6 kA					
	30	6	2	5SU9356-1KK06	
		10		5SU9356-1KK10	
		16		5SU9356-1KK16	
		20		5SU9356-1KK20	
		25		5SU9356-1KK25	
		32		5SU9356-1KK32	
		40		5SU9356-1KK40	
		50		5SU9356-1KK50	
		63		5SU9356-1KK63	
1P+N; 230 V AC, Without overvoltage protection					
10 kA					
	30	6	2	5SU9354-7KK06	
		10		5SU9354-7KK10	
		16		5SU9354-7KK16	
		20		5SU9354-7KK20	
		25		5SU9354-7KK25	
		32		5SU9354-7KK32	
		40		5SU9354-7KK40	
		50		5SU9354-7KK50	
		63		5SU9354-7KK63	

[1] 1MW (Modular Width =18 mm.)

Molded Case Circuit Breakers

3/2 **Introduction**

3/3 **3VF2 Molded Case Circuit Breakers up to 100 A**

3VT Molded Case Circuit Breakers up to 1600 A

3/4 Introduction

3/5 3VT1 Molded Case Circuit Breakers up to 160 A

3/7 3VT2-5 Molded Case Circuit Breakers up to 1600 A

3/10 Internal accessories and spare parts

3/12 External accessories and spare parts

3VL Molded Case Circuit Breakers up to 1600 A

3/14 Introduction

3/17 3-pole

3/21 Internal accessories and spare parts

3/22 External accessories and spare parts

For further technical product information:

Service & Support Portal

www.siemens.com/lowvoltage/product-support

→ Product List:
Technical specifications

→ Entry List:
Certificates / Characteristics / Download / FAQ / Manuals / Updates

Introduction

Overview

Siemens molded case circuit breakers Universally applicable and space-saving. Featuring a particularly compact design, the Siemens molded case circuit breakers meet all requirements placed upon space-saving electrical distribution systems – in a power range from 16 A to 1600 A.

Depending on requirements, the universal and communication-capable circuit breakers are available for line and motor protection, for starter combinations or as non-automatic air circuit breakers. The respective trip units are available as either a thermal-magnetic version (16 A to 630 A) or an electronic version (63 A to 1600 A). With only two families for internal accessories, the Siemens molded case circuit breakers offer maximum diversity at minimum expense.

The advantages at a glance

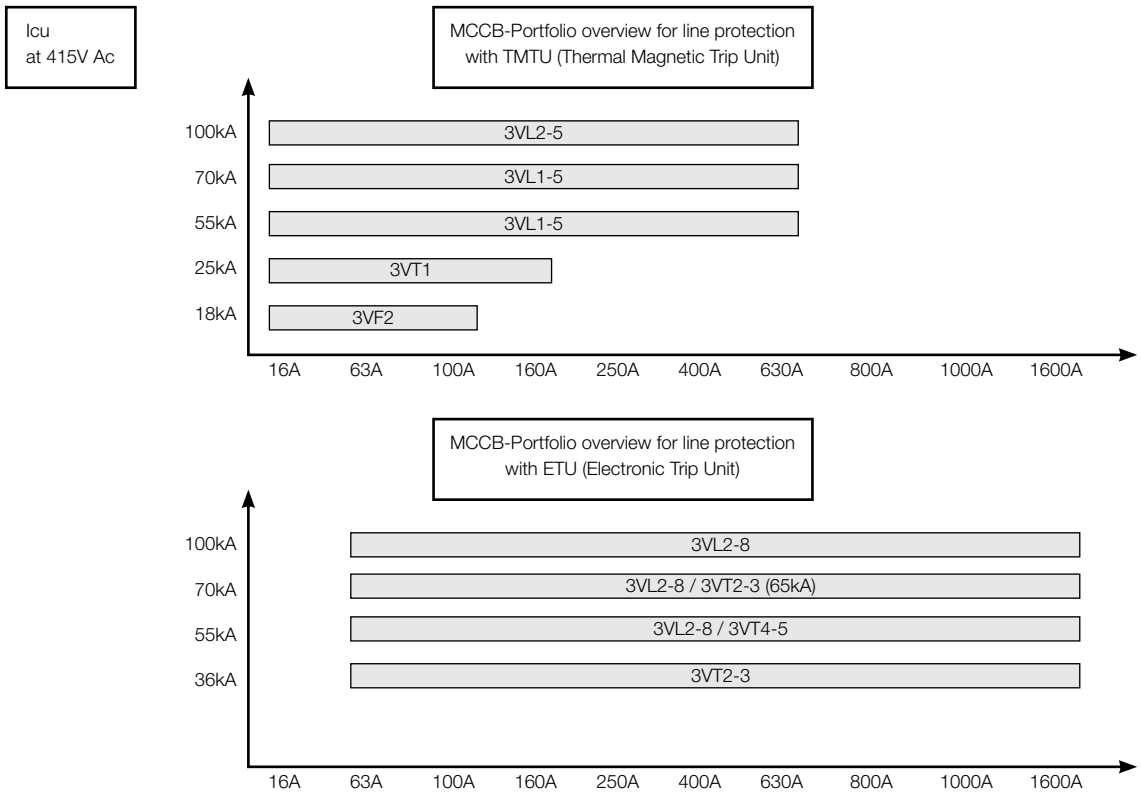
- Siemens molded case circuit breakers meet the high requirements of modern electrical distribution systems thanks to their compact design, outstanding technical properties and simple operation
- Versatile and applicable worldwide
  Thanks to a wide product range and international IEC and UL approvals (3VL UL version). Without derating up to 55 °C ambient temperature; available as thermal-magnetic and electrical version
- Simple to configure, build and modify, thanks to modular design with minimum components and uniform accessories
- Siemens 3VL with Full communication capability via PROFIBUS DP and MODBUS

Overview

- As incoming and outgoing circuit breakers in low-voltage switchgear assemblies
- As switching and protective devices for motors, transformers and capacitors
- As system interrupter with features for stopping and switching off in an emergency (EMERGENCY-STOP switch)
- For stopping and switching off in conjunction with lockable rotary operators and terminal covers

International standards and approvals

- IEC 60947-1, EN 60947-1
- VDE 0660 Part 100 and Part 101
- Isolating characteristics in accordance with IEC 60947-2, EN 60947-2
- Characteristics as system interrupter (main control switch) according to EN 60204 or DIN VDE 0113
- UL 489-compliant versions are also available for (Siemens 3VL MCCB). MCCBS with option, Siemens 3VL.



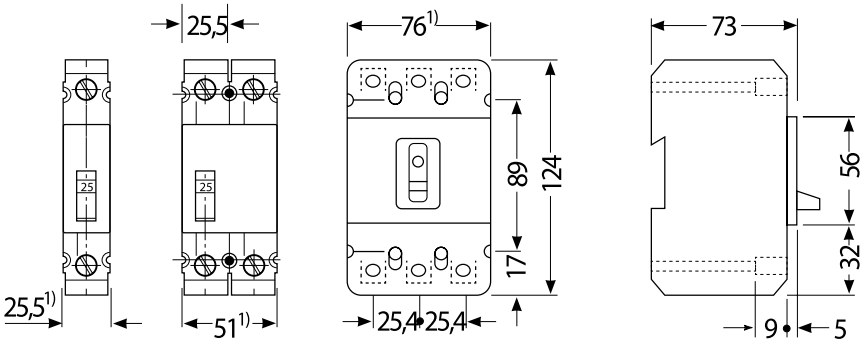
For further information, please refer to the product information
"3VL Molded Case Circuit Breakers for the UL Market" at:
http://www.siemens.com/lowvoltage/infomaterial

Picture	Connection technology	Type	Rated current I_n	Current setting of the inverse-time delayed overload protection "L" I_r	Operating current of the instantaneous Short-Circuit protection "I" I_i	Icu up to 18kA at 415V		Icu up to 18kA at 415V		Icu up to 18kA at 415V	
						Order No.	Basic price per PU (THB)	Order No.	Basic price per PU (THB)	Order No.	Basic price per PU (THB)
			A	A	A	1-pole		2-pole		3-pole	
1, 2 and 3 pole, fixed mounted, 3VF2, up to 100A						FTFM: with fixed overload protection Ir and fixed short-circuit protection Ii					
Connection with box terminal											
		3VF22	16	16	350	3VF2216-0VC41-0AA0		3VF2217-0EC41-0AA0		3VF2213-0FC41-0AA0	
			20	20	450	3VF2216-0VD41-0AA0		3VF2217-0ED41-0AA0		3VF2213-0FD41-0AA0	
			25	25	500	3VF2216-0VE41-0AA0		3VF2217-0EE41-0AA0		3VF2213-0FE41-0AA0	
			32	32	600	3VF2216-0VG41-0AA0		3VF2217-0EG41-0AA0		3VF2213-0FG41-0AA0	
			40	40	750	3VF2216-0VJ41-0AA0		3VF2217-0EJ41-0AA0		3VF2213-0FJ41-0AA0	
			50	50	800	3VF2216-0VL41-0AA0		3VF2217-0EL41-0AA0		3VF2213-0FL41-0AA0	
			63	63	800	3VF2216-0VN41-0AA0		3VF2217-0EN41-0AA0		3VF2213-0FN41-0AA0	
			70	70	900	3VF2216-0VP41-0AA0		3VF2217-0EP41-0AA0		3VF2213-0FP41-0AA0	
			80	80	900	3VF2216-0VQ41-0AA0		3VF2217-0EQ41-0AA0		3VF2213-0FQ41-0AA0	
			90	90	1000	3VF2216-0VR41-0AA0		3VF2217-0ER41-0AA0		3VF2213-0FR41-0AA0	
			100	100	1000	3VF2216-0VS41-0AA0		3VF2217-0ES41-0AA0		3VF2213-0FS41-0AA0	

Short circuit capacity

Rated ultimate short-circuit breaking capacity Icu	up to 240V		65kA	65kA
	up to 415V	18kA	18kA	18kA
Rated service short-circuit breaking capacity Ics	up to 240V		33kA	33kA
	up to 415V	9kA	9kA	9kA
Rated short-circuit making capacity Icm	up to 240V	143kA	143kA	143kA
	up to 415V	36kA	36kA	36kA

Dimension and drawings



Molded Case Circuit Breakers

3VT1-5 Molded Case Circuit Breakers up to 1600 A

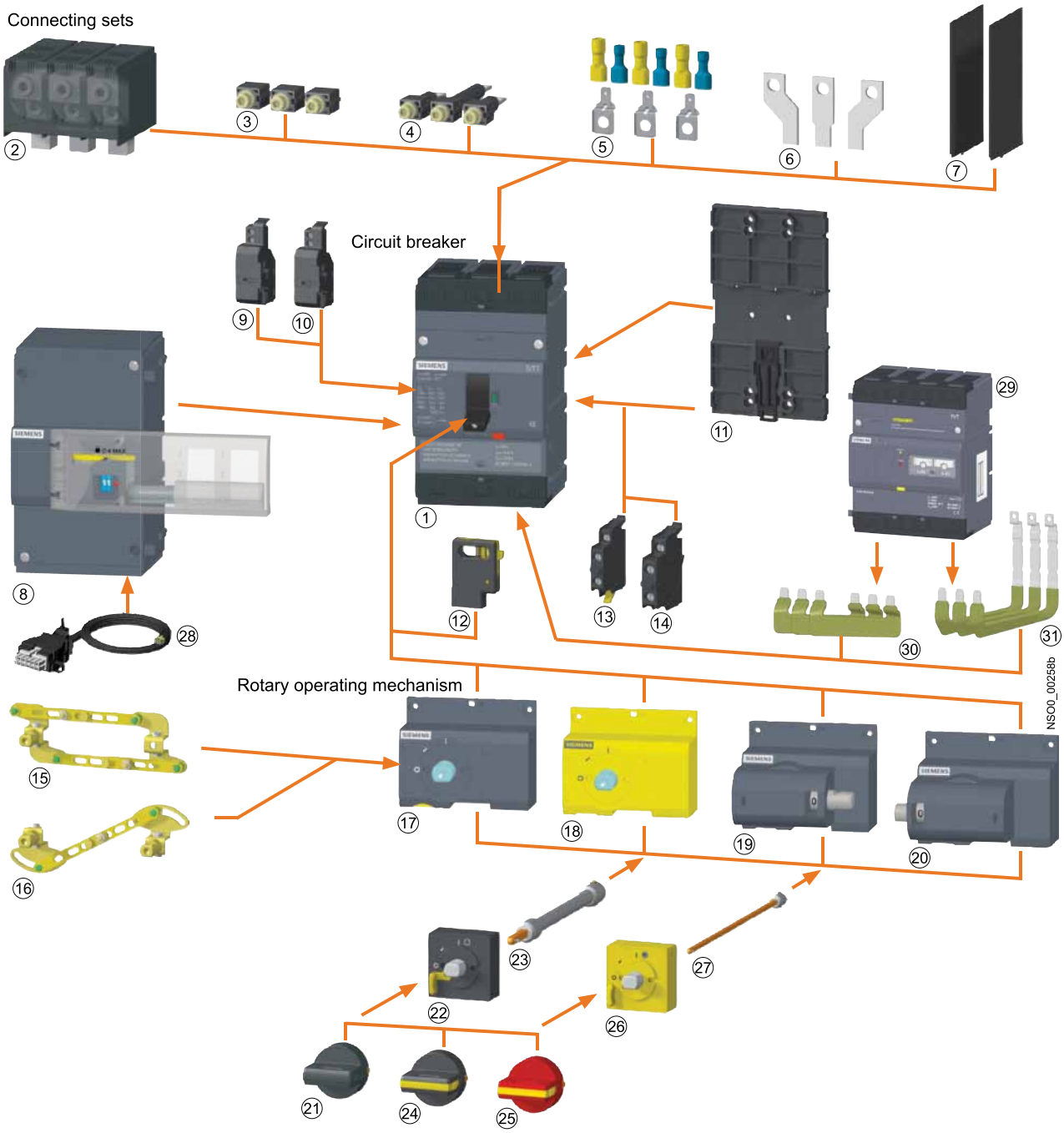
Technical specifications

			3VT1	3VT2 N	3VT2 H	3VT3 N	3VT3 H	3VT4 H	3VT5 H
Frame size maximum rated current		A	160	250		630		1,000	1,600
Rated current I_n		A	16, 20, 25, 32, 40, 50, 63, 80, 100, 125, 160	100, 160, 200, 250		250, 315, 400, 500, 630		315, 630, 800, 1,000	630, 1,000, 1,250, 1,600
Rated insulation voltage U_i		V	690	690		690		690	690
Rated operational voltage U_e		V	max. 690 V AC	max. 690 V AC		max. 690 V AC		max. 690 V AC	max. 690 V AC
Number of poles			3/4	3/4		3/4		3	3
Rated ultimate short-circuit breaking capacity I_{cu} up to 415 V AC/50 Hz		kA	25	36	65	36	65	36	36
Rated service short-circuit breaking capacity I_{cs} up to 415 V AC/50 Hz		kA	13	18	36	18	36	36	36
Endurance	Electrical		20,000	30,000		20,000		10,000	10,000
	Mechanical		6,000	3,000		5,000		4,000	4,000
Overcurrent release	Thermal-magnetic trip unit		•	-		-		-	-
	Electronic trip unit		-	•		•		•	•
Outline Dimension	Width 3-pole		75 mm	105 mm		140 mm		210 mm	210 mm
	4-pole		100 mm	140 mm		185 mm		-	-
	Height		130 mm	225 mm		275 mm		494 mm	494 mm
	Depth		70 mm	117 mm		117 mm		157 mm	157 mm

For additional technical information and specification, please see in siemens catalog LV 36.2011
Order No. E86060-K1836-A101-A5-7600

Overview

Versions and accessories



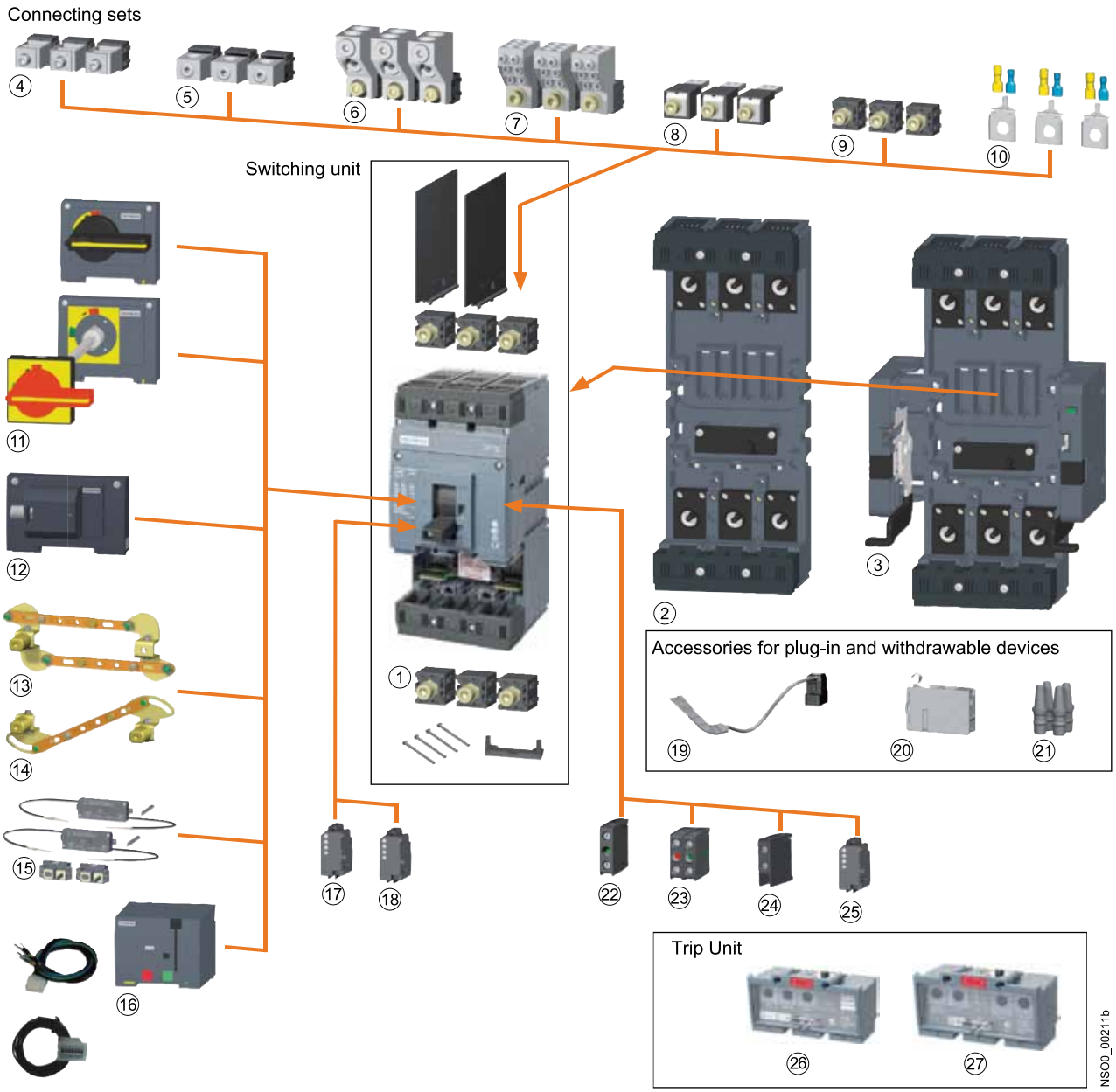
1 3VT circuit breaker
2 Circular conductor terminal
3 Front connection
4 Rear connection *
5 Auxiliary conductor terminal
6 Front connecting bus with increased pole spacing
7 Insulating barriers
8 Laterally mounted motorized operating mechanism
9 Shunt trip unit
10 Undervoltage trip unit
11 Adapter to install on 35 mm DIN rail
12 Lockingtype lever
13 Signal switch
14 Auxiliary switch
15 Mechanical parallel switching
16 Mechanical interlocking
17 Front manual operating mechanism
18 Front manual operating mechanism
19 Lateral manual operating mechanism (right)
20 Lateral manual operating mechanism (left)
21 Non lockable knob
22 Coupling driver
23 Telescopic extension shaft
24 Lockable knob
25 Lockable knob
26 Coupling driver
27 Extension shaft
28 Extension Cable
29 Residual current device (RCD) * module
30 Connection set for RCD, short *
31 Connection set for RCD, long *

* For other option, Please contact your local Siemens partner

Overview

Picture	Connection technology	Type	Rated current I_n	Current setting of the inverse-time delayed overload protection "L" I_r	Operating current of the instantaneous Short-Circuit protection "I" I_i	Icu up to 25kA at 415V Order No.	Basic price per PU (THB)
			A	A	A		
3 pole, fixed mounted, 3VT1, up to 160A Thermal-magnetic trip unit							
	Connection with box terminal					FTFM: with fixed overload protection Ir and fixed short-circuit protection Ii	
	for connecting Cu/Al-cables with cross section 2.5 … 95qmm	3VT1	40	40	160	3VT1704-2DA36-0AA0	
			50	50	200	3VT1705-2DA36-0AA0	
			63	63	252	3VT1706-2DA36-0AA0	
			80	80	320	3VT1708-2DA36-0AA0	
			100	100	400	3VT1710-2DA36-0AA0	
			125	125	500	3VT1712-2DA36-0AA0	
			160	160	640	3VT1716-2DA36-0AA0	
	Connection with box terminal					FTAM: with fixed overload protection Ir and adjustable short-circuit protection Ii	
	for connecting Cu/Al-cables with cross section 2.5 … 95qmm	3VT1	32	32	160 ... 320	3VT1703-2DB36-0AA0	
			40	40	200 ... 400	3VT1704-2DB36-0AA0	
			50	50	250 ... 500	3VT1705-2DB36-0AA0	
			63	63	315 ... 630	3VT1706-2DB36-0AA0	
			80	80	400 ... 800	3VT1708-2DB36-0AA0	
			100	100	500 ... 1000	3VT1710-2DB36-0AA0	
			125	125	625 ... 1250	3VT1712-2DB36-0AA0	
			160	160	800 ... 1600	3VT1716-2DB36-0AA0	
	Connection with box terminal					ATAM: with adjustable overload protection Ir and adjustable short-circuit protection Ii	
	for connecting Cu/Al-cables with cross section 2.5 … 95qmm	3VT1	16	12,5 ... 16	160 ... 240	3VT1703-2DB36-0AA0	
			20	16 ... 20	200 ... 300	3VT1703-2DB36-0AA0	
			25	20 ... 25	250 ... 375	3VT1703-2DB36-0AA0	
			32	25 ... 32	160 ... 320	3VT1703-2DB36-0AA0	
			40	32 ... 40	200 ... 400	3VT1704-2DB36-0AA0	
			50	40 ... 50	250 ... 500	3VT1705-2DB36-0AA0	
			63	50 ... 63	315 ... 630	3VT1706-2DB36-0AA0	
			80	63 ... 80	400 ... 800	3VT1708-2DB36-0AA0	
			100	80 ... 100	500 ... 1000	3VT1710-2DB36-0AA0	
			125	100 ... 125	625 ... 1250	3VT1712-2DB36-0AA0	
			160	125 ... 160	800 ... 1600	3VT1716-2DB36-0AA0	

Overview



① Molded case circuit breaker
② Plug-in device *
③ Withdrawable device *
④ Box terminals *
⑤ Circular conductor terminal *
⑥ Multiple feed-in terminal *
⑦ Multiple feed-in terminal *
⑧ Rear connection *
⑨ Front connection *
⑩ Auxiliary conductor terminal
⑪ Rotary operating mechanism
⑫ Lateral rotary operating mechanism
⑬ Mechanical parallel switching
⑭ Mechanical interlocking
⑮ Mechanical interlocking by Bowden wire
⑯ Motor operating mechanism
⑰ Shunt trip unit
⑱ Undervoltage trip unit
⑲ Connecting cable *
⑳ Position signalling *
㉑ Coding Set *
㉒ Auxiliary switch NC/NO
㉓ Auxiliary switch NC/NO
㉔ Auxiliary switch, change-over contact
㉕ Auxiliary switch, early
㉖ ETU LI Function
㉗ ETU LSI-Function

* For other option, Please contact your local Siemens partner

Molded Case Circuit Breakers

3VT2-5 Molded Case Circuit Breakers up to 1600A ETU, 400V, 36kA / 65kA

Line protection

Overview

Picture	Connection technology	Type	Rated current I_n Short circuit rating I_n / I_{cu}	Current setting of the inverse-time delayed overload protection "L" I_r	Switching Unit Order No.	Basic price per PU (THB)
			A	3-pole		
3-pole, fixed mounted, 3VT2-5, up to 1600A Electronic Trip Unit						
Connection sets for front connection included						
		3VT2	250A Frame I_{cu} up to 36kA at 415V I_{cu} up to 65kA at 415V	40 ... 100 63 ... 160 100 ... 250	3VT2725-2AA36-0AA0 3VT2725-3AA36-0AA0	
		3VT3	630A Frame I_{cu} up to 36kA at 415V I_{cu} up to 65kA at 415V	40 ... 100 63 ... 160 100 ... 250	3VT3763-2AA36-0AA0 3VT3763-3AA36-0AA0	
		3VT4	1000A Frame I_{cu} up to 55kA at 415V	125 ... 315 250 ... 630 315 ... 800 400 ... 1000	3VT4710-3AA30-0AA0	
		3VT5	1600A Frame I_{cu} up to 55kA at 415V	250 ... 630 400 ... 1000 500 ... 1250 630 ... 1600	3VT5716-3AA30-0AA0	

Overview

Operating current of the instantaneous short-circuit protection "I" I_i	ETU LI-function Order No.	Basic price per PU (THB)	Operating current of the instantaneous short-circuit protection "I" I_i	S function short-circuit protection (short-time delayed) "S" I_{sd}	ETU LSI-function Order No.	Basic price per PU (THB)
			A	A		
4 x I_r / 8 x I_r	3VT9210-6AC00		3 ... 9 x I_r	2500A	3VT9210-6AS00	
4 x I_r / 8 x I_r	3VT9216-6AC00		3 ... 9 x I_r	2500A	3VT9216-6AS00	
4 x I_r / 8 x I_r	3VT9225-6AC00		3 ... 9 x I_r	2500A	3VT9225-6AS00	
4 x I_r / 12.5 x I_r	3VT9325-6AC00		2 ... 10 x I_r	6500A	3VT9325-6AS00	
4 x I_r / 12.5 x I_r	3VT9340-6AC00		2 ... 10 x I_r	6500A	3VT9340-6AS00	
4 x I_r / 12.5 x I_r	3VT9363-6AC00		2 ... 10 x I_r	6500A	3VT9363-6AS00	
500 ... 5000	3VT9431-6AC00		3 ... 9 x I_r	500 ... 5000	3VT9431-6AD00	
800 ... 10000	3VT9463-6AC00		3 ... 9 x I_r	800 ... 10000	3VT9463-6AD00	
1000 ... 12000	3VT9480-6AC00		3 ... 9 x I_r	1000 ... 12000	3VT9480-6AD00	
1250 ... 14000	3VT9410-6AC00		3 ... 9 x I_r	1250 ... 14000	3VT9410-6AD00	
800 ... 10000	3VT9563-6AC00		2 ... 10 x I_r	800 ... 10000	3VT9563-6AD00	
1250 ... 15000	3VT9510-6AC00		2 ... 10 x I_r	1250 ... 15000	3VT9510-6AD00	
1500 ... 18000	3VT9512-6AC00		2 ... 10 x I_r	1500 ... 18000	3VT9512-6AD00	
2000 ... 20000	3VT9516-6AC00		2 ... 10 x I_r	2000 ... 20000	3VT9516-6AD00	

Designation				Order No.	Basic price per PU (THB)
Auxiliary switches for signalling the states of the main contacts					
	for type	**Volt / Hz**		**contact**	
	3VT1	AC / DC	60 … 250V	CO	3VT9100-2AB10
		AC / DC	5 … 60V	CO	3VT9100-2AB20
	3VT2 and 3VT3	AC / DC	60 … 500V	1 x NO	3VT9300-2AC10
		AC / DC	5 … 60V	1 x NO	3VT9300-2AC20
		AC / DC	60 … 500V	1 x NC	3VT9300-2AD10
		AC / DC	5 … 60V	1 x NC	3VT9300-2AD20
		AC / DC	60 … 500V	2 x NO	3VT9300-2AG10
		AC / DC	5 … 60V	2 x NO	3VT9300-2AG20
		AC / DC	60 … 500V	2 x NC	3VT9300-2AE10
		AC / DC	5 … 60V	2 x NC	3VT9300-2AE20
		AC / DC	60 … 500V	1 x NO + 1 x NO	3VT9300-2AF10
		AC / DC	5 … 60V	1 x NO + 1 x NO	3VT9300-2AF20
		AC / DC	60 … 250V	CO	3VT9300-2AH10
		AC / DC	5 … 60V	CO	3VT9300-2AH20
	3VT4 and 3VT5	AC 60 … 500V / DC 60 .. 240V		1 x NO + 1 x NO	3VT9500-2AF10
		AC / DC	5 … 60V	1 x NO + 1 x NO	3VT9500-2AF20
Auxiliary switches for signalling the tripping of the c. b. by a trip unit					
	3VT1	AC / DC	60 … 250V	CO	3VT9100-2AH10
		AC / DC	5 … 60V	CO	3VT9100-2AH20
Leading contact / early break / leading changeover					
	3VT2	AC	250V		3VT9300-2AJ00
Undervoltage release, UVR					
	3VT1	AC	24, 48V		3VT9100-1UC00
		AC	110, 230V		3VT9100-1UD00
		AC	230, 400V		3VT9100-1UE00
		DC	24, 48V		3VT9100-1UU00
		DC	110, 220V		3VT9100-1UV00
	3VT2 and 3VT3	AC / DC	24, 40, 48V		3VT9300-1UC00
		AC / DC	110V		3VT9300-1UD00
		AC	230, 400, 500V / DC 220V		3VT9300-1UE00
		with leading contact (early)			
		AC / DC	24, 40, 48V		3VT9300-1UC10
		AC / DC	110V		3VT9300-1UD10
		AC	230, 400, 500V / DC 220V		3VT9300-1UE10
	3VT4 and 3VT5	AC / DC	24V		3VT9500-1UF00
		AC / DC	48V		3VT9500-1UG00
		AC / DC	110V		3VT9500-1UH00
		AC	230V / DC 220V		3VT9500-1UJ00
		AC	400V		3VT9500-1UK00
		AC	500V		3VT9500-1UL00
Shunt trip, ST					
	3VT1	DC	12V		3VT9100-1SB00
		AC/DC	24, 48V		3VT9100-1SC00
		AC 110, 230V / DC 110, 220V			3VT9100-1SD00
		AC 230, 400V / DC 220V			3VT9100-1SE00
	3VT2 and 3VT3	DC 12V			3VT9300-1SB00
		AC/DC 24, 48V			3VT9300-1SC00
		AC 110, 230V / DC 110, 220V			3VT9300-1SD00
		AC 230, 400V / DC 220V			3VT9300-1SE00
	3VT4 and 3VT5	AC / DC	24V		3VT9500-1SF00
		AC / DC	48V		3VT9500-1SG00
		AC / DC	110V		3VT9500-1SH00
		AC 230V / DC 220V			3VT9500-1SJ00
		AC	400V		3VT9500-1SK00
		AC	500V		3VT9500-1SL00

Designation			Order No.	Basic price per PU (THB)
Terminals for fixed-mounted version				
	for type	**terminals for front connection**		
	3VT1	box terminal, 1 set = 3 units	3VT9100-4TA30	
	3VT2	box terminal, 1 set = 3 units	3VT9200-4TC30	
	3VT3	box terminal, 1 set = 3 units	3VT9300-4TA30	
	for front connection bars; increase pole spacing			
	3VT1	connection bars, 1 set = 3 units	3VT9100-4ED30	
	3VT2	connection bars, 1 set = 3 units	3VT9200-4ED30	
	3VT3	connection bars, 1 set = 3 units	3VT9300-4ED30	
	for front connection bars; increase pole spacing			
	3VT2	connection bars, 1 set = 3 units	3VT9200-4EE30	
	3VT3	connection bars, 1 set = 3 units	3VT9300-4EE30	
	Auxiliary conductor terminals			
	3VT1	1,5 … 2,5qmm / 4 … 6qmm	3VT9100-4TN30	
	3VT2	1,5 … 2,5qmm / 4 … 6qmm	3VT9200-4TN30	
	3VT3	1,5 … 2,5qmm / 4 … 6qmm	3VT9300-4TN30	

Connection technology				Order No.	Basic price per PU (THB)
Mounting on 35mm DIN rail					
	3VT1	adapter for DIN rail mounting		3VT9100-4PP30	
Mounting on 35mm DIN rail					
	for type	Rotary operating mechanism Rotary operating mechanism			
	Order List	1 + 2			
		Door Rotary Opreationg mechnism			
	Order List	1 + 2 + 3 + 4			
		Side Door Rotary Opreationg mechnism			
	Order List (Only 3VT1 , 3VT2 and 3VT3)	2 + 3 + 4 + 5			
	3VT1	front, not lockable front, lockable with padlock front, lockable with padlock	gray gray yellow	①	3VT9100-3HA10 3VT9100-3HA20 3VT9100-3HB20
		left side, not lockable right side, not lockable	gray gray	⑤	3VT9100-3HC10 3VT9100-3HD10
		knob, not lockable knob, lockable with padlock	black black	②	3VT9100-3HE10 3VT9100-3HE20
		door-coupling operating mechanism			
		degree of protection IP40 degree of protection IP66	black black	③	3VT9100-3HG10 3VT9100-3HG20
		extension shaft, 350mm	can be shorten	④	3VT9100-3HJ10
	3VT2	front, not lockable front, lockable with padlock front, lockable with padlock	gray gray yellow	①	3VT9200-3HA10 3VT9200-3HA20 3VT9200-3HB20
		left side, not lockable right side, not lockable	gray gray	⑤	3VT9200-3HC10 3VT9200-3HD10
	3VT3	front, not lockable front, lockable with padlock front, lockable with padlock	gray gray yellow	①	3VT9300-3HA10 3VT9300-3HA20 3VT9300-3HB20
		left side, not lockable right side, not lockable	gray gray	⑤	3VT9300-3HC10 3VT9300-3HD10
	3VT2 and 3VT3	knob, not lockable knob, lockable with padlock	black black	②	3VT9300-3HE10 3VT9300-3HE20
		door-coupling operating mechanism			
		degree of protection IP40 degree of protection IP66	black black	③	3VT9300-3HG10 3VT9300-3HG20
		extension shaft, 350mm	can be shorten	④	3VT9300-3HJ10
	3VT4 and 3VT5	front, lockable with padlock knob, lockable with padlock	gray black	①	3VT9500-3HA10 3VT9500-3HE10
		door-coupling operating mechanism			
		degree of protection IP44 degree of protection IP66	black black	③	3VT9500-3HG10 3VT9500-3HG20
		extension shaft, 365mm	can be shorten	④	3VT9500-3HJ10

Connection technology				Order No.	Basic price per PU (THB)
Interlocking					
	for type	**Mechanical interlocking**			
	3VT1	mechan. Interlocking additionally require 2 x 3VT9100-3HA.. (rotary operating mechanism) 1 or 2 x 3VT9100-3HE (knobs)		3VT9100-8LA00	
	3VT2 & 3	mechan. Interlocking additionally require 2 x 3VT9200-3HA.. (rotary operating mechanism) 1 or 2 x 3VT9300-3HE (knobs)		3VT9300-8LA00	
	3VT4 & 5	mechan. Interlocking additionally require both circuit breaker must be equipped with a rotary operating mechanism and a knob		3VT9500-8LA00	
		Mechan. interlocking by bowden cable			
	3VT2	for two 3VT2		3VT9200-8LC10	
	3VT2 & 3	for one 3VT2 and one 3VT3		3VT9300-8LC20	
	3VT4 & 5	for fixed mounted version (both)		3VT9500-8LC10	
Motor (without storage spring)					
	for type	**Volt / Hz**			
	3VT1	AC / DC 24V		3VT9100-3MA00	
	side	AC / DC 48V		3VT9100-3MB00	
	mounted	AC / DC 110V		3VT9100-3MD00	
		AC 230V / DC 220V		3VT9100-3ME00	
		extension cable, 12 wire, 60 cm.		3VT9100-3MF00	
Motor (without storage spring)					
	for type	**Volt / Hz**			
	3VT2	AC / DC 24V	w/o counter,	3VT9200-3MJ00	
		AC / DC 48V	for 3 x padlocks,	3VT9200-3ML00	
		AC / DC 110V	IP00	3VT9200-3MN00	
		AC 230V / DC 220V		3VT9200-3MQ00	
	3VT3	AC / DC 24V	w/o counter,	3VT9300-3MJ00	
		AC / DC 48V	for 3 x padlocks,	3VT9300-3ML00	
		AC / DC 110V	IP00	3VT9300-3MN00	
		AC 230V / DC 220V		3VT9300-3MQ00	
	3VT2	extension cable, 12 wire, 60cm		3VT9300-3MF00	
	and				
	3VT3	operations counter, with cable, 110cm		3VT9300-3MF10	
	3VT4	AC / DC 110V	w/o counter,	3VT9500-3MN00	
		AC 230V / DC 220V		3VT9500-3MQ00	

Molded Case Circuit Breakers

3VL Molded Case Circuit Breakers up to 1600A

Technical speacification

Type		VL160X/3VL1	VL160/3VL2	VL250/3VL3	VL400/3VL4	VL630/3VL5	VL800/3VL6	VL1250/3VL7	VL1600/3VL8
Molded case circuit breakers									
3VL molded case circuit breakers up to 1600 A									
Rated current I_n at 50 °C ambient temperature	A	16 ... 160	50 ... 160	200 ... 250	200 ... 400	315 ... 630	800	1000 ... 1250	1600
Number of poles		3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4
Rated operational voltage U_e									
AC 50/60 Hz	V	690	690	690	690	690	690	690	690
DC[1]	V	500	600	600	600	600	--	--	--
Electronic releases									
Thermal-magnetic		✓	✓	✓	✓	✓	--	--	--
Electronic LCD ETU/ETU		--	✓	✓	✓	✓	✓	✓	✓
Communication-capable		--	✓	✓	✓	✓	✓	✓	✓
Switching capacity I_{cu}/I_{cs} RMS value according to IEC 60947-2									
Standard switching capacity N[2] (N)									
Up to 240 V AC	kA	65/65	65/65	65/65	65/65	65/65	65/65	65/35	65/35
Up to 415 V AC	kA	55/55	55/55	55/55	55/55	55/55	55/55	55/28	55/28
Up to 440 V AC	kA	25/20	25/20	25/20	35/26	35/26	35/26	35/26	35/26
Up to 500/525 V AC	kA	18/14	25/20	25/20	25/20	25/20	25/20	25/20	25/20
Up to 690 V AC	kA	8/4[3]	12/6	12/6	15/8	20/10	20/10	20/10	20/10
Up to 250 V DC[4]	kA	30/30	32/32	32/32	32/32	30/30	--	--	--
Up to 500 V DC[4]	kA	--	--	--	--	--	--	--	--
Up to 600 V DC[4]	kA	--	--	--	--	--	--	--	--
NEMA breaking capacity[5]									
Up to 480 V AC	kA	25	25	25	35	25	25	25	25
Up to 600 V AC	kA	8[3]	12	12	20	20	20	20	20
High switching capacity H[2] (H)									
Up to 240 V AC	kA	100/75	100/75	100/75	100/75	100/75	100/75	100/50	100/50
Up to 415 V AC	kA	70/70	70/70	70/70	70/70	70/70	70/70	70/35	70/35
Up to 440 V AC	kA	42/32	50/38	50/38	50/38	50/38	50/38	50/38	50/38
Up to 500/525 V AC	kA	30/23	40/30	40/30	40/30	40/30	40/30	40/30	40/30
Up to 690 V AC	kA	12/6[3]	12/6	12/6	15/8	20/10	20/10	30/15	30/15
Up to 250 V DC[4]	kA	30/30	32/32	32/32	32/32	30/30	--	--	--
Up to 500 V DC[4]	kA	30/30	32/32	32/32	32/32	30/30	--	--	--
Up to 600 V DC[4]	kA	--	--	--	--	--	--	--	--
NEMA breaking capacity[5]									
Up to 480 V AC	kA	42	50	50	50	50	50	50	50
Up to 600 V AC	kA	12[3]	12	12	20	30	30	30	30
Very high switching capacity L[2] (L)									
Up to 240 V AC	kA	--	200/150	200/150	200/150	200/150	200/150	200/100	200/100
Up to 415 V AC	kA	--	100/75	100/75	100/75	100/75	100/75	100/50	100/50
Up to 440 V AC	kA	--	75/50	75/50	75/50	75/50	75/50	75/50	75/50
Up to 500/525 V AC	kA	--	50/38	50/38	50/38	50/38	50/38	50/38	50/38
Up to 690 V AC	kA	--	12/6	12/6	15/8	20/10	20/10	35/17	35/17
Up to 250 V DC[4]	kA	--	32/32	32/32	32/32	30/30	--	--	--
Up to 500 V DC[4]	kA	--	32/32	32/32	32/32	30/30	--	--	--
Up to 600 V DC[4]	kA	--	32/32	32/32	32/32	30/30	--	--	--
NEMA breaking capacity[5]									
Up to 480 V AC	kA	--	75	75	75	65	65	65	65
Up to 600 V AC	kA	--	12	12	20	35	35	35	35

✓ Available

-- Not available

1) Rated DC voltage applies only for circuit breakers with thermal-magnetic release.

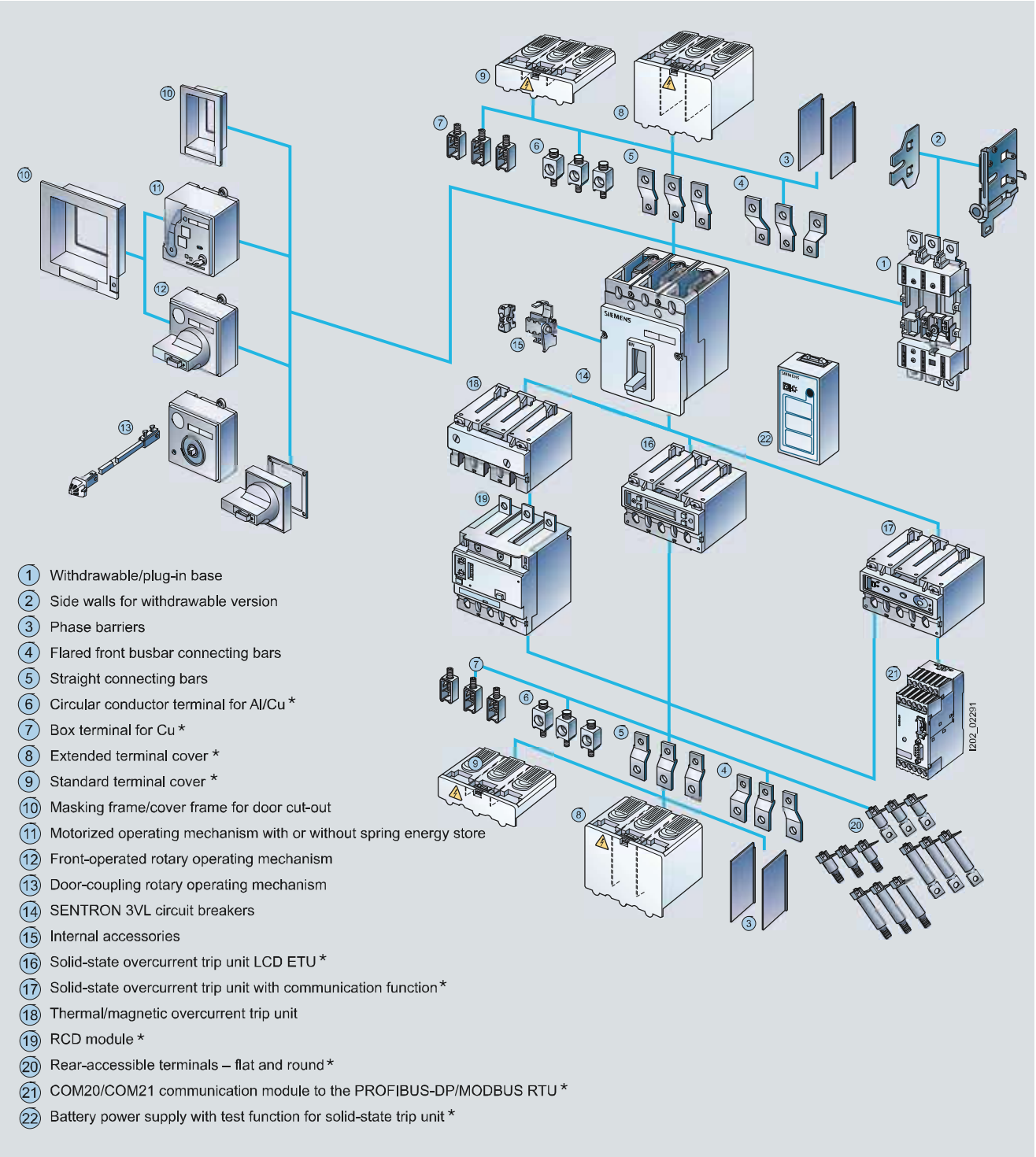
2) At 240 V AC, 415 V AC and 525 V AC max. 5 % overvoltage, at 440 V AC, 500 V AC and 690 V AC max. 10 % overvoltage, at 250/500/600 V DC max. 5 % overvoltage.

3) Rated current $I_n \geq 25$ A.

4) The maximum permitted DC voltage for each conducting path needs to be taken into account for DC switching applications, see Technical Information at www.siemens.com/lowvoltage/support; Time constant t = 15 ms.

5) The NEMA breaking capacity can be found on the rating plate of each IEC circuit breaker.

Overview of components and accessory parts



1 Withdrawable/plug-in base
2 Side walls for withdrawable version
3 Phase barriers
4 Flared front busbar connecting bars
5 Straight connecting bars
6 Circular conductor terminal for Al/Cu *
7 Box terminal for Cu *
8 Extended terminal cover *
9 Standard terminal cover *
10 Masking frame/cover frame for door cut-out
11 Motorized operating mechanism with or without spring energy store
12 Front-operated rotary operating mechanism
13 Door-coupling rotary operating mechanism
14 SENTRON 3VL circuit breakers
15 Internal accessories
16 Solid-state overcurrent trip unit LCD ETU *
17 Solid-state overcurrent trip unit with communication function *
18 Thermal/magnetic overcurrent trip unit
19 RCD module *
20 Rear-accessible terminals – flat and round *
21 COM20/COM21 communication module to the PROFIBUS-DP/MODBUS RTU *
22 Battery power supply with test function for solid-state trip unit *

Modular design of the circuit breaker with universally standardized accessories

*for other option, please contact your Siemens Local partner.

**for technical information and specification, please see in Siemens Catalog LV10. 2014
(Order No. E86060-K8280-A101-A1-7600)

Overview

Overview

Benefits when it comes to planning

- Further operating range from 16 to 1600A
- Available for plant, generator and motor protection, for starter combinations or as non-automatic air circuit breaker
- Various licenses and international approvals permit almost limitless use (IEC 60947-2, UL 489, CSA, NOM, CCC, GOST, shipbuilding (GL, LRS, DNV, BV))
- Universal and retrofittable accessories for all sizes

Benefits

Benefits in the control cabinet

- Switching from high short-circuit currents despite limited space requirement
- Up to three difference breaking capacity 55/70/100 kA available in one size
- Simple mounting and operation
- High flexibility through various range of accessories and modular design

Field of application

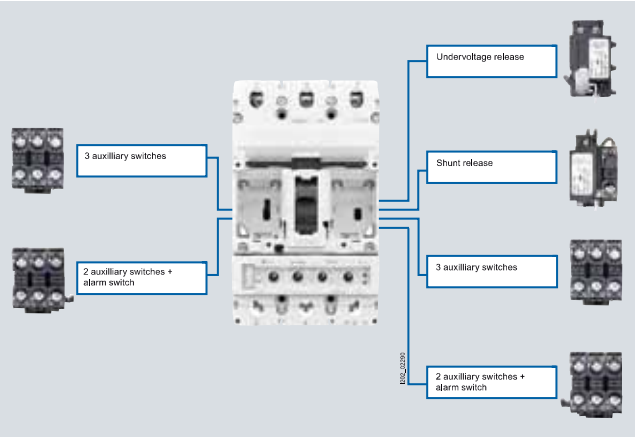
- Protection against overload and short-circuit protection for plant, generators and motors. Also available for starter combination for motors or as non-automatic air circuit breaker
- Universal communication concept with PROFIBUS-DP or Modbus RTU
- No derating up to 55 °C
- Expanded selectivity with the 3VL circuit breaker can be achieved simply and safely using the zone selective interlocking (ZSI)

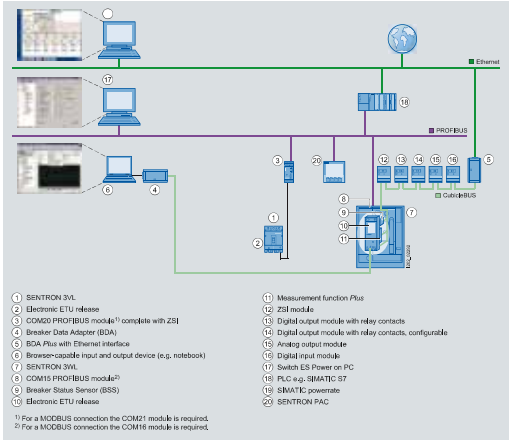
Added value in operation

- High efficiency and reliability through constant quality optimization
- Fast and easy setting of parameters
- Costs saving, productivity increases, higher availability and flexibility through communication capability
- Test possibilities for inspection and maintenance (manual tester for electronic releases)

International standards and approvals

- IEC 60947-2 / EN 60947-2 (VDE 0660-101)
- IEC 60947-1 / EN 60947-1 (VDE 0660-100)
- Isolating features according to IEC 60947-2 / EN 60947-2 (VDE 0660-107)
- Disconnector unit features for stopping and deactivating in case of emergency (main and EMERGENCY-STOP switch) according to IEC 60204-1 / EN 60204-1 (VDE 0113-1)




Ethernet
PROFIBUS
CubicleBUS
1 SENTRON 3VL
2 Electronic ETU release
3 COM20 PROFIBUS module 1) complete with ZSI
4 Breaker Data Adapter (BDA)
5 BDA Plus with Ethernet interface
6 Browser-capable input and output device (e.g. notebook)
7 SENTRON 3WL
8 COM15 PROFIBUS module 2)
9 Breaker Status Sensor (BSS)
10 Electronic ETU release
11 Measurement function Plus
12 ZSI module
13 Digital output module with relay contacts
14 Digital output module with relay contacts, configurable
15 Analog output module
16 Digital input module
17 Switch ES Power on PC
18 PLC e.g. SIMATIC S7
19 SIMATIC powerrate
20 SENTRON PAC
1) For a MODBUS connection the COM21 module is required.
2) For a MODBUS connection the COM16 module is required.

3VL circuit breaker and communication module

Unlimited communication:
with the innovative COM20 and COM21 modules

For the economic and safe operation of the plant, transparency in energy distribution is the basic requirement - and this is satisfied completely with the COM20/21. By integrating the modules, all ETU versions can communicate universally via PROFIBUS/MODBUS.
Whether switch status, trigger cause, alarms, current measurement, event log, switching cycles or device controls: The costs and function-optimized COM20/21 reliably transmit all important information so that there is transparency regarding the status of your plant at all times.

Added value in operation

- Can be used universally - even with the cheap ETU, universal communication is possible
- Easy installation through optimized ETU connection
- Maximum fkexibility thanks to smaller size for space optimization in the control cabinet
- Particularly uncomplicated, as no auxiliary and and alarm switch wiring to the communication module

Picture	Connection technology	Type	Rated current I_n	Current setting of the inverse-time delayed overload protection "L" I_r	Operating current of the instanta-neous Short-Circuit protection "I" I_i	Icu up to 55kA at 415V, standard breaking capacity N		Icu up to 70kA at 415V, standard breaking capacity H		Icu up to 100kA at 415V, standard breaking capacity L	
						Order No.	Basic price per PU (THB)	Order No.	Basic price per PU (THB)	Order No.	Basic price per PU (THB)
			A	A	A	1-pole		2-pole		3-pole	
3-pole*, fixed mounted, Termal Magnetic Trip Unit, Type: FTFM with fixed overload protection Ir and fixed instantaneous short-circuit protection Ii**											
VL160/3VL1		3VL1 FTFM	16	16	300	3VL1796-1DA3 3-0AA0		3VL1796-2DA3 3-0AA0			
			20	20	300	3VL1702-1DA3 3-0AA0		3VL1702-2DA3 3-0AA0			
			25	25	300	3VL1725-1DA3 3-0AA0		3VL1725-2DA3 3-0AA0			
			32	32	300	3VL1703-1DA3 3-0AA0		3VL1703-2DA3 3-0AA0			
			40	40	600	3VL1704-1DA3 3-0AA0		3VL1704-2DA3 3-0AA0			
			50	50	600	3VL1705-1DA3 3-0AA0		3VL1705-2DA3 3-0AA0			
			63	63	600	3VL1706-1DA3 3-0AA0		3VL1706-2DA3 3-0AA0			
			80	80	1000	3VL1708-1DA3 3-0AA0		3VL1708-2DA3 3-0AA0			
			100	100	400	3VL1710-1DA3 3-0AA0		3VL1710-2DA3 3-0AA0			
			125	125	1000	3VL1712-1DA3 3-0AA0		3VL1712-2DA3 3-0AA0			
			160	160	1500	3VL1716-1DA3 3-0AA0		3VL1716-2DA3 3-0AA0			
							Add price		Add price		
Option: Connection with lug terminal						6		6			
3-pole*, fixed mounted, Termal Magnetic Trip Unit, Type: ATFM with adjustable overload protection Ir and fixed instantaneous short-circuit protection Ii**											
VL160/3VL1		3VL1 ATFM	16								
			20	16 ... 20	300	3VL1702-1DD3 3-0AA0		3VL1702-2DD3 3-0AA0			
			25								
			32	25 ... 32	300	3VL1703-1DD3 3-0AA0		3VL1703-2DD3 3-0AA0			
			40	32 ... 40	600	3VL1704-1DD3 3-0AA0		3VL1704-2DD3 3-0AA0			
			50	40 ... 50	600	3VL1705-1DD3 3-0AA0		3VL1705-2DD3 3-0AA0			
			63	50 ... 63	600	3VL1706-1DD3 3-0AA0		3VL1706-2DD3 3-0AA0			
			80	63 ... 80	1000	3VL1708-1DD3 3-0AA0		3VL1708-2DD3 3-0AA0			
			100	80 ... 100	1000	3VL1710-1DD3 3-0AA0		3VL1710-2DD3 3-0AA0			
			125	100 ... 125	1000	3VL1712-1DD3 3-0AA0		3VL1712-2DD3 3-0AA0			
			160	125 ... 160	1500	3VL1716-1DD3 3-0AA0		3VL1716-2DD3 3-0AA0			
							Add price		Add price		
Option: Connection with lug terminal						6		6			

* For 4-pole Circuit Breaker, the price is 1.4 times of 3-pole type.
** For further information and price, please contact your local Siemens partner.

Molded Case Circuit Breakers

3VL Molded Case Circuit Breakers up to 1600A, 415V

Line protection

Picture	Connection technology	Type	Rated current I_n	Current setting of the inverse-time delayed overload protection "L" I_r	Operating current of the instantaneous Short-Circuit protection "I" I_i	Icu up to 55kA at 415V, standard breaking capacity N		Icu up to 70kA at 415V, standard breaking capacity H		Icu up to 100kA at 415V, standard breaking capacity L	
						Order No.	Basic price per PU (THB)	Order No.	Basic price per PU (THB)	Order No.	Basic price per PU (THB)
			A	A	A	1-pole		2-pole		3-pole	
3pole*, fixed mounted, Termal Magnetic Trip Unit, Type: ATAM with adjustable overload protection Ir and adjustable instantaneous short-circuit protection Ii**											
VL160/3VL2		3VL2 ATAM	16								
			20								
			25								
			32								
			40								
			50	40 ... 50	300 ... 600	3VL2705-1DC3 3-0AA0		3VL2705-2DC3 3-0AA0		3VL2705-3DC3 3-0AA0	
			63	50 ... 63	300 ... 600	3VL2706-1DC3 3-0AA0		3VL2706-2DC3 3-0AA0		3VL2706-3DC3 3-0AA0	
			80	63 ... 80	400 ... 800	3VL2708-1DC3 3-0AA0		3VL2708-2DC3 3-0AA0		3VL2708-3DC3 3-0AA0	
			100	80 ... 100	500 ... 1000	3VL2710-1DC3 3-0AA0		3VL2710-2DC3 3-0AA0		3VL2710-3DC3 3-0AA0	
			125	100 ... 125	625 ... 1250	3VL2712-1DC3 3-0AA0		3VL2712-2DC3 3-0AA0		3VL2712-3DC3 3-0AA0	
			160	125 ... 160	800 ... 1600	3VL2716-1DC3 3-0AA0		3VL2716-2DC3 3-0AA0		3VL2716-3DC3 3-0AA0	
							Add price		Add price		
		Option: Connection with lug terminal				6		6			
VL250/3VL3		3VL3 ATAM	200	160 ... 200	1000 ... 2000	3VL3720-1DC3 3-0AA0		3VL3720-2DC3 3-0AA0		3VL3720-3DC3 3-0AA0	
			250	200 ... 250	1250 ... 2500	3VL3725-1DC3 3-0AA0		3VL3725-2DC3 3-0AA0		3VL3725-3DC3 3-0AA0	
							Add price		Add price		
		Option: Connection with lug terminal				6		6			
VL400/3VL4		3VL4 ATAM	200	160 ... 200	1000 ... 2000	3VL4720-1DC3 3-0AA0		3VL4720-2DC3 3-0AA0		3VL4720-3DC3 3-0AA0	
			250	200 ... 250	1250 ... 2500	3VL4725-1DC3 3-0AA0		3VL4725-2DC3 3-0AA0		3VL4725-3DC3 3-0AA0	
			320	250 ... 315	1575 ... 3150	3VL4731-1DC3 3-0AA0		3VL4731-2DC3 3-0AA0		3VL4731-3DC3 3-0AA0	
			400	320 ... 400	2000 ... 4000	3VL4740-1DC3 3-0AA0		3VL4740-2DC3 3-0AA0		3VL4740-3DC3 3-0AA0	
							Add price		Add price		
		Option: Connection with lug terminal				6		6			
VL630/3VL5		3VAL5 ATAM	315	250 ... 315	1575 ... 3150	3VL5731-1DC3 3-0AA0		3VL5731-2DC3 3-0AA0		3VL5731-3DC3 3-0AA0	
			400	320 ... 400	2000 ... 4000	3VL5740-1DC3 3-0AA0		3VL5740-2DC3 3-0AA0		3VL5740-3DC3 3-0AA0	
			500	400 ... 500	2500 ... 5000	3VL5750-1DC3 3-0AA0		3VL5750-2DC3 3-0AA0		3VL5750-3DC3 3-0AA0	
			630	500 ... 630	3150 ... 6300	3VL5763-1DC3 3-0AA0		3VL5763-2DC3 3-0AA0		3VL5763-3DC3 3-0AA0	
							Add price		Add price		
		Option: Connection with lug terminal				6		6			

* For 4-pole Circuit Breaker, the price is 1.4 times of 3-pole type.
** For further information and price, please contact your local Siemens partner.

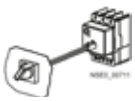
Picture	Connection technology	Type	Rated current I_n	Current setting of the inverse-time delayed overload protection "L" I_r	S- function (short time delayed short circuit protection "S") I_{sd}	Operating current of the instantaneous short circuit protection "I" I_i	Icu up to 55kA at 415V, standard breaking capacity N		Icu up to 70kA at 415V, high breaking capacity H		Icu up to 100kA at 415V, very high breaking capacity L	
							Order No.	Basic price per PU (THB)	Order No.	Basic price per PU (THB)	Order No.	Basic price per PU (THB)
			A	A	A	A						
3-pole*, fixed mounted, Electronic Trip Unit**, LI-finction, Type ETU10 with adjustable protection via rotary switch**												
160A	with box terminal	3VL2	63	25 ... 63		1.25 ... 11 x I_n	3VL2706-1SB33-0AA0		3VL2706-2SB33-0AA0		3VL2706-3SB33-0AA0	
			100	40 ... 100		1.25 ... 11 x I_n	3VL2710-1SB33-0AA0		3VL2710-2SB33-0AA0		3VL2710-3SB33-0AA0	
			160	64 ... 160		1.25 ... 11 x I_n	3VL2716-1SB33-0AA0		3VL2716-2SB33-0AA0		3VL2716-3SB33-0AA0	
	with lug terminal	3VL2	63	25 ... 63		1.25 ... 11 x I_n	3VL2706-1SB36-0AA0		3VL2706-2SB36-0AA0		3VL2706-3SB36-0AA0	
			100	40 ... 100		1.25 ... 11 x I_n	3VL2710-1SB36-0AA0		3VL2710-2SB36-0AA0		3VL2710-3SB36-0AA0	
			160	64 ... 160		1.25 ... 11 x I_n	3VL2716-1SB36-0AA0		3VL2716-2SB36-0AA0		3VL2716-3SB36-0AA0	
250A	with box terminal	3VL3	200	80 ... 200		1.25 ... 11 x I_n	3VL3720-1SB33-0AA0		3VL3720-2SB33-0AA0		3VL3720-3SB33-0AA0	
			250	100 ... 250		1.25 ... 11 x I_n	3VL3725-1SB33-0AA0		3VL3725-2SB33-0AA0		3VL3725-3SB33-0AA0	
	with lug terminal	3VL3	200	80 ... 200		1.25 ... 11 x I_n	3VL3720-1SB36-0AA0		3VL3720-2SB36-0AA0		3VL3720-3SB36-0AA0	
			250	100 ... 250		1.25 ... 11 x I_n	3VL3725-1SB36-0AA0		3VL3725-2SB36-0AA0		3VL3725-3SB36-0AA0	
400A	with lug terminal	3VL4	315	128 ... 315		1.25 ... 11 x I_n	3VL4731-1SB36-0AA0		3VL4731-2SB36-0AA0		3VL4731-3SB36-0AA0	
			400	160 ... 400		1.25 ... 11 x I_n	3VL4740-1SB36-0AA0		3VL4740-2SB36-0AA0		3VL4740-3SB36-0AA0	
630A	with lug terminal	3VL5	630	252 ... 630		1.25 ... 11 x I_n	3VL5763-1SB36-0AA0		3VL5763-2SB36-0AA0		3VL5763-3SB36-0AA0	
800A	with lug terminal	3VL6	800	320 ... 800		1.25 ... 8 x I_n	3VL6780-1SB36-0AA0		3VL6780-2SB36-0AA0		3VL6780-3SB36-0AA0	
1250A	with lug terminal	3VL7	1000	400 ... 1000		1.25 ... 11 x I_n	3VL7710-1SB36-0AA0		3VL7710-2SB36-0AA0		3VL7710-3SB36-0AA0	
			1250	500 ... 1250		1.25 ... 11 x I_n	3VL7712-1SB36-0AA0		3VL7712-2SB36-0AA0		3VL7712-3SB36-0AA0	
1600A	with lug terminal	3VL8	1600	640 ... 1600		1.25 ... 9 x I_n	3VL8716-1SB36-0AA0		3VL8716-2SB36-0AA0		3VL8716-3SB36-0AA0	
3-pole*, fixed mounted, Electronic Trip Unit**, LSI-finction, Type ETU20 with adjustable protection via rotary switch**												
160A	with box terminal	3VL2	63	25 ... 63	1.5 ... 10 x I_r	11 x I_n	3VL2706-1SE33-0AA0		3VL2706-2SE33-0AA0		3VL2706-3SE33-0AA0	
			100	40 ... 100	1.5 ... 10 x I_r	11 x I_n	3VL2710-1SE33-0AA0		3VL2710-2SE33-0AA0		3VL2710-3SE33-0AA0	
			160	64 ... 160	1.5 ... 10 x I_r	11 x I_n	3VL2716-1SE33-0AA0		3VL2716-2SE33-0AA0		3VL2716-3SE33-0AA0	
	with lug terminal	3VL2	63	25 ... 63	1.5 ... 10 x I_r	11 x I_n	3VL2706-1SE36-0AA0		3VL2706-2SE36-0AA0		3VL2706-3SE36-0AA0	
			100	40 ... 100	1.5 ... 10 x I_r	11 x I_n	3VL2710-1SE36-0AA0		3VL2710-2SE36-0AA0		3VL2710-3SE36-0AA0	
			160	64 ... 160	1.5 ... 10 x I_r	11 x I_n	3VL2716-1SE36-0AA0		3VL2716-2SE36-0AA0		3VL2716-3SE36-0AA0	
250A	with box terminal	3VL3	200	80 ... 200	1.5 ... 10 x I_r	11 x I_n	3VL3720-1SE33-0AA0		3VL3720-2SE33-0AA0		3VL3720-3SE33-0AA0	
			250	100 ... 250	1.5 ... 10 x I_r	11 x I_n	3VL3725-1SE33-0AA0		3VL3725-2SE33-0AA0		3VL3725-3SE33-0AA0	
	with lug terminal	3VL3	200	80 ... 200	1.5 ... 10 x I_r	11 x I_n	3VL3720-1SE36-0AA0		3VL3720-2SE36-0AA0		3VL3720-3SE36-0AA0	
			250	100 ... 250	1.5 ... 10 x I_r	11 x I_n	3VL3725-1SE36-0AA0		3VL3725-2SE36-0AA0		3VL3725-3SE36-0AA0	
400A	with lug terminal	3VL4	315	128 ... 315	1.5 ... 10 x I_r	11 x I_n	3VL4731-1SE36-0AA0		3VL4731-2SE36-0AA0		3VL4731-3SE36-0AA0	
			400	160 ... 400	1.5 ... 10 x I_r	11 x I_n	3VL4740-1SE36-0AA0		3VL4740-2SE36-0AA0		3VL4740-3SE36-0AA0	
630A	with lug terminal	3VL5	630	252 ... 630	1.5 ... 9 x I_r	11 x I_n	3VL5763-1SE36-0AA0		3VL5763-2SE36-0AA0		3VL5763-3SE36-0AA0	
800A	with lug terminal	3VL6	800	320 ... 800	1.5 ... 7 x I_r	8 x I_n	3VL6780-1SE36-0AA0		3VL6780-2SE36-0AA0		3VL6780-3SE36-0AA0	
1250A	with lug terminal	3VL7	1000	400 ... 1000	1.5 ... 10 x I_r	11 x I_n	3VL7710-1SE36-0AA0		3VL7710-2SE36-0AA0		3VL7710-3SE36-0AA0	
			1250	500 ... 1250	1.5 ... 10 x I_r	11 x I_n	3VL7712-1SE36-0AA0		3VL7712-2SE36-0AA0		3VL7712-3SE36-0AA0	
1600A	with lug terminal	3VL8	1600	640 ... 1600	1.5 ... 8 x I_r	9 x I_n	3VL8716-1SE36-0AA0		3VL8716-2SE36-0AA0		3VL8716-3SE36-0AA0	

Picture	Connection technology	Type	Rated current I_n	Current setting of the inverse-time delayed overload protection "L" I_r	S- function (short time delayed short circuit protection "S") I_{sd}	Operating current of the instantaneous short circuit protection "I" I_i	Icu up to 55kA at 415V, standard breaking capacity N		Icu up to 70kA at 415V, high breaking capacity H		Icu up to 100kA at 415V, very high breaking capacity L	
							Order No.	Basic price per PU (THB)	Order No.	Basic price per PU (THB)	Order No.	Basic price per PU (THB)
			A	A	A	A						
3-pole*, fixed mounted, Electronic Trip Unit**, LSIG-finction, Type ETU22 with adjustable protection via rotary switch; setting of Ig = 1 x In and OFF**												
160A	with box terminal	3VL2	63	25 ... 63	1.5 ... 10 x I_r	11 x I_n	3VL2706-1SG33-0AA0		3VL2706-2SG33-0AA0		3VL2706-3SG33-0AA0	
			100	40 ... 100	1.5 ... 10 x I_r	11 x I_n	3VL2710-1SG33-0AA0		3VL2710-2SG33-0AA0		3VL2710-3SG33-0AA0	
			160	64 ... 160	1.5 ... 10 x I_r	11 x I_n	3VL2716-1SG33-0AA0		3VL2716-2SG33-0AA0		3VL2716-3SG33-0AA0	
	with lug terminal	3VL2	63	25 ... 63	1.5 ... 10 x I_r	11 x I_n	3VL2706-1SG36-0AA0		3VL2706-2SG36-0AA0		3VL2706-3SG36-0AA0	
			100	40 ... 100	1.5 ... 10 x I_r	11 x I_n	3VL2710-1SG36-0AA0		3VL2710-2SG36-0AA0		3VL2710-3SG36-0AA0	
			160	64 ... 160	1.5 ... 10 x I_r	11 x I_n	3VL2716-1SG36-0AA0		3VL2716-2SG36-0AA0		3VL2716-3SG36-0AA0	
250A	with box terminal	3VL3	200	80 ... 200	1.5 ... 10 x I_r	11 x I_n	3VL3720-1SG33-0AA0		3VL3720-2SG33-0AA0		3VL3720-3SG33-0AA0	
			250	100 ... 250	1.5 ... 10 x I_r	11 x I_n	3VL3725-1SG33-0AA0		3VL3725-2SG33-0AA0		3VL3725-3SG33-0AA0	
	with lug terminal	3VL3	200	80 ... 200	1.5 ... 10 x I_r	11 x I_n	3VL3720-1SG36-0AA0		3VL3720-2SG36-0AA0		3VL3720-3SG36-0AA0	
			250	100 ... 250	1.5 ... 10 x I_r	11 x I_n	3VL3725-1SG36-0AA0		3VL3725-2SG36-0AA0		3VL3725-3SG36-0AA0	
400A	with lug terminal	3VL4	315	128 ... 315	1.5 ... 10 x I_r	11 x I_n	3VL4731-1SG36-0AA0		3VL4731-2SG36-0AA0		3VL4731-3SG36-0AA0	
			400	160 ... 400	1.5 ... 10 x I_r	11 x I_n	3VL4740-1SG36-0AA0		3VL4740-2SG36-0AA0		3VL4740-3SG36-0AA0	
630A	with lug terminal	3VL5	630	252 ... 630	1.5 ... 9 x I_r	11 x I_n	3VL5763-1SG36-0AA0		3VL5763-2SG36-0AA0		3VL5763-3SG36-0AA0	
800A	with lug terminal	3VL6	800	320 ... 800	1.5 ... 7 x I_r	8 x I_n	3VL6780-1SG36-0AA0		3VL6780-2SG36-0AA0		3VL6780-3SG36-0AA0	
1250A	with lug terminal	3VL7	1000	400 ... 1000	1.5 ... 10 x I_r	11 x I_n	3VL7710-1SG36-0AA0		3VL7710-2SG36-0AA0		3VL7710-3SG36-0AA0	
			1250	500 ... 1250	1.5 ... 10 x I_r	11 x I_n	3VL7712-1SG36-0AA0		3VL7712-2SG36-0AA0		3VL7712-3SG36-0AA0	
1600A	with lug terminal	3VL8	1600	640 ... 1600	1.5 ... 8 x I_r	9 x I_n	3VL8716-1SG36-0AA0		3VL8716-2SG36-0AA0		3VL8716-3SG36-0AA0	

* For 4-pole Circuit Breaker, the price is 1.4 times of 3-pole type.
** For further information and price, please contact your local Siemens partner.

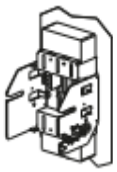
Designation				Order No.	Basic price per PU (THB)
Auxiliary switches for signalling the states of the main contacts					
	for type	**contact**			
	3VL1-3VL4	1 x NO + 1 x NC	2 x HS	3VL9400-2AB00	
		1 x NO + 1 x NC + 1 AS (NO)	2 x HS + 1 x AS	3VL9400-2AD00	
	3VL5-3VL8	2 x NO + 2 x NC	4 x HS	3VL9800-2AC00	
		1 x NO + 1 x NC + 1 AS (NO)	2 x HS + 1 x AS	3VL9800-2AE00	
Auxiliary switches for signalling the states of the main contacts					
	3VL1-3VL4	max.of 6 contact blocks		3SB3400-0J	
	3VL5-8	max.of 8 contact blocks		3SB3400-0K	
Undervoltage release, UVR					
	3VL1-3VL4	DC 24V	right pole, only	3VL9400-1UP00	
		AC 110 ... 127V	right pole, only	3VL9400-1UG00	
		AC 220 ... 250V	right pole, only	3VL9400-1UH00	
		AC 220 ... 250V	right pole, only	3VL9400-1US00	
		AC 380 ... 415V	right pole, only	3VL9400-1UJ00	
		AC 440 ... 480V	right pole, only	3VL9400-1UK00	
	3VL5-3VL8	DC 24V	right pole, only	3VL9800-1UP00	
		AC 110 ... 127V	right pole, only	3VL9800-1UG00	
		AC 220 ... 250V	right pole, only	3VL9800-1UH00	
		AC 220 ... 250V	right pole, only	3VL9800-1US00	
		AC 380 ... 415V	right pole, only	3VL9800-1UJ00	
		AC 440 ... 480V	right pole, only	3VL9800-1UK00	
Shunt trip, ST					
	3VL1-3VL4	DC 24V	right pole, only	3VL9400-1SC00	
		AC 110 ... 127V	right pole, only	3VL9400-1SK00	
		AC 220 ... 250V	right pole, only	3VL9400-1SQ00	
		AC 110 ... 127V	right pole, only	3VL9400-1SR00	
		AC 208 ... 277V	right pole, only	3VL9400-1ST00	
		AC 380 ... 600V	right pole, only	3VL9400-1SV00	
	3VL5-3VL8	DC 24V	right pole, only	3VL9800-1SC00	
		AC 110 ... 127V	right pole, only	3VL9800-1SK00	
		AC 220 ... 250V	right pole, only	3VL9800-1SQ00	
		AC 110 ... 127V	right pole, only	3VL9800-1SR00	
		AC 208 ... 277V	right pole, only	3VL9800-1ST00	
		AC 380 ... 600V	right pole, only	3VL9800-1SV00	

External accessories and spare parts

Designation				Order No.	Basic price per PU (THB)
Manual operator					
	for type	**Rotary operating mechanism front mounting**			
	3VL1-3VL3	front, lockable with 3 x padlock	gray	3VL9300-3HA00	
	3VL4	front, lockable with 3 x padlock	gray	3VL9400-3HA00	
	3VL5-6	front, lockable with 3 x padlock	gray	3VL9600-3HA00	
	3VL7-8	front, lockable with 3 x padlock	gray	3VL9800-3HA00	
		Emergency stop version			
	3VL1-3VL3	front, lockable with 3 x padlock	red / yellow	3VL9300-3HC00	
	3VL4	front, lockable with 3 x padlock	red / yellow	3VL9400-3HC00	
	3VL5-6	front, lockable with 3 x padlock	red / yellow	3VL9600-3HC00	
	3VL7-8	front, lockable with 3 x padlock	red / yellow	3VL9800-3HC00	
		**door coupling, complete**			
	3VL1-3VL3	front, lockable with 3 x padlock	gray	3VL9300-3HF05	
	3VL4	front, lockable with 3 x padlock	gray	3VL9400-3HF05	
	3VL5-6	front, lockable with 3 x padlock	gray	3VL9600-3HF05	
	3VL7-8	front, lockable with 3 x padlock	gray	3VL9800-3HF05	
		Emergency stop version			
	3VL1-3VL3	front, lockable with 3 x padlock	red / yellow	3VL9300-3HG05	
	3VL4	front, lockable with 3 x padlock	red / yellow	3VL9400-3HG05	
	3VL5-6	front, lockable with 3 x padlock	red / yellow	3VL9600-3HG05	
	3VL7-8	front, lockable with 3 x padlock	red / yellow	3VL9800-3HG05	
Interlockings					
		Locking devices for toggle lever, 3 x padlocks			
	3VL1-3VL3	for locking in “OFF-position”	3-pole and 4-pole	3VL9300-3HL00	
	3VL4			3VL9400-3HL00	
	3VL5-6			3VL9600-3HL00	
	3VL7-8			3VL9800-3HL00	
		Rear interlocking modules			
	3VL1-3	fixed mounted		3VL9300-8LC00	
		plug in/withdrawable		3VL9300-8LD00	
	3VL4	fixed mounted		3VL9400-8LC00	
		plug in/withdrawable		3VL9400-8LD00	
	3VL5-6	fixed mounted		3VL9600-8LC00	
		plug in/withdrawable		3VL9600-8LD00	
	3VL7-8	fixed mounted		3VL9800-8LC00	
		plug in/withdrawable		3VL9800-8LD00	
		Module for bowden wire interlocking			
	3VL1-3VL3	for locking in “OFF-position”		3VL9300-8LA00	
	3VL4			3VL9400-8LA00	
	3VL5-6			3VL9600-8LA00	
	3VL7-8			3VL9800-8LA00	
		Module for bowden wire interlocking			
cable	3VL1-3	wire lenght 0.5m		3VL9000-8LH10	
	3VL1-7	wire lenght 1.0m		3VL9000-8LH20	
	3VL1-8	wire lenght 1.5m		3VL9000-8LH30	

Designation			Order No.	Basic price per PU (THB)
Motorized operating mechanism (MO)				
without stored energy mechanism; not for synchronisation tasks				
	for type	**Volt / Hz**		
	3VL1	DC 24V AC / DC 42 ... 60V AC / DC 110 ... 127V AC / DC 220 ... 250V	for 3 x padlocks, IP30	3VL9100-3MA10 3VL9100-3MC10 3VL9100-3MD10 3VL9100-3ME10
	3VL2-3	DC 24V AC / DC 42 ... 60V AC / DC 110 ... 127V AC / DC 220 ... 250V	for 3 x padlocks, IP30	3VL9300-3MA10 3VL9300-3MC10 3VL9300-3MD10 3VL9300-3ME10
	3VL4	DC 24V AC / DC 42 ... 60V AC / DC 110 ... 127V AC / DC 220 ... 250V	for 3 x padlocks, IP30	3VL9400-3MA10 3VL9400-3MC10 3VL9400-3MD10 3VL9400-3ME10
	3VL5-6	DC 24V AC / DC 42 ... 60V AC / DC 110 ... 127V AC / DC 220 ... 250V	for 3 x padlocks, IP30	3VL9600-3MA10 3VL9600-3MC10 3VL9600-3MD10 3VL9600-3ME10
	3VL7-8	DC 24V AC / DC 42 ... 60V AC / DC 110 ... 127V AC / DC 220 ... 250V	for 3 x padlocks, IP30	3VL9800-3MA10 3VL9800-3MC10 3VL9800-3MD10 3VL9800-3ME10
Motor; with stored energy mechanism (SEO)				
for synchronisation tasks				
	3VL1-3VL3	DC 24V AC / DC 42 ... 60V AC / DC 110 ... 127V AC / DC 220 ... 250V	for 3 x padlocks, IP30	3VL9300-3MJ00 3VL9300-3ML00 3VL9300-3MN00 3VL9300-3MQ00
	3VL4	DC 24V AC / DC 42 ... 60V AC / DC 110 ... 127V AC / DC 220 ... 250V	for 3 x padlocks, IP30	3VL9400-3MJ00 3VL9400-3ML00 3VL9400-3MN00 3VL9400-3MQ00
	3VL5-6	DC 24V AC / DC 42 ... 60V AC / DC 110 ... 127V AC / DC 220 ... 250V	for 3 x padlocks, IP30	3VL9600-3MJ00 3VL9600-3ML00 3VL9600-3MN00 3VL9600-3MQ00
Terminals for fixed-mounted version				
	for type	**for front connection bars**		
	3VL1-2	connection bars, 1 set = 3 units connection bars, 1 set = 4 units	3-pole 4-pole	3VL9216-4EC30 3VL9216-4EC40
	3VL3	connection bars, 1 set = 3 units connection bars, 1 set = 4 units	3-pole 4-pole	3VL9316-4EC30 3VL9316-4EC40
	3VL4	connection bars, 1 set = 3 units connection bars, 1 set = 4 units	3-pole 4-pole	3VL9416-4EC30 3VL9416-4EC40
	3VL5	connection bars, 1 set = 3 units connection bars, 1 set = 4 units	3-pole 4-pole	3VL9516-4EC30 3VL9516-4EC40
	3VL6	connection bars, 1 set = 3 units connection bars, 1 set = 4 units	3-pole 4-pole	3VL9616-4EC30 3VL9616-4EC40
	3VL7-8	connection bars, 1 set = 3 units connection bars, 1 set = 4 units	3-pole 4-pole	3VL9816-4EC30 3VL9816-4EC40

Designation				Order No.	Basic price per PU (THB)
Terminals for fixed-mounted version					
	for type	**for front connection bars; increase pole spacing**			
NSE0_00722	3VL1-2	connection bars, 1 set = 3 units	3-pole	3VL9216-4ED30	
		connection bars, 1 set = 4 units	3-pole	3VL9216-4ED40	
	3VL3	connection bars, 1 set = 3 units	3-pole	3VL9316-4ED30	
		connection bars, 1 set = 4 units	3-pole	3VL9316-4ED40	
	3VL4	connection bars, 1 set = 3 units	3-pole	3VL9416-4ED30	
		connection bars, 1 set = 4 units	3-pole	3VL9416-4ED40	
	3VL5	connection bars, 1 set = 3 units	3-pole	3VL9516-4ED30	
		connection bars, 1 set = 4 units	3-pole	3VL9516-4ED40	
	3VL6	connection bars, 1 set = 3 units	3-pole	3VL9616-4ED30	
		connection bars, 1 set = 4 units	3-pole	3VL9616-4ED40	
Connection cover					
	for type	**terminals for front connection**			
NSE0_00730	3VL1-3	extended	3-pole	3VL9300-8CA30	
		standard	3-pole	3VL9300-8CB30	
		extended	4-pole	3VL9300-8CA40	
		standard	4-pole	3VL9300-8CB40	
	3VL4	extended	3-pole	3VL9400-8CA30	
		standard	3-pole	3VL9400-8CB30	
		extended	4-pole	3VL9400-8CA40	
		standard	4-pole	3VL9400-8CB40	
	3VL5-6	extended	3-pole	3VL9600-8CA30	
		standard	3-pole	3VL9600-8CB30	
		extended	4-pole	3VL9600-8CA40	
		standard	4-pole	3VL9600-8CB40	
	3VL7-8	extended	3-pole	3VL9800-8CA30	
		standard	3-pole	3VL9800-8CB30	
		extended	4-pole	3VL9800-8CA40	
		standard	4-pole	3VL9800-8CB40	
Connection cover					
for fixed mounted, plug-in or withdrawable versions					
NSE0_00731	3VL1-3 3VL4-6 3VL7-8	1 set = 2 units 1 set = 2 units 1 set = 2 units		3VL9300-8CE00 3VL9600-8CE00 3VL9800-8CE00	
Plug-in version					
NSE0_00717	3VL1	3-pole		3VL9100-4PC30	
		4-pole		3VL9100-4PC40	
	3VL2 160A	3-pole		3VL9200-4PC30	
		4-pole		3VL9200-4PC40	
	3VL3 250A	3-pole		3VL9300-4PC30	
		4-pole		3VL9300-4PC40	
	3VL4 400A	3-pole		3VL9400-4PC30	
		4-pole		3VL9400-4PC40	
	3VL5 630A	3-pole		3VL9500-4PC30	
		4-pole		3VL9500-4PC40	

Designation			Order No.	Basic price per PU (THB)
Connection cover				
Withdrawable version				
 NSE0_00683	3VL2 160A	3-pole 4-pole	3VL9200-4WC30 3VL9200-4WC40	
	3VL3 250A	3-pole 4-pole	3VL9300-4WC30 3VL9300-4WC40	
	3VL4 400A	3-pole 4-pole	3VL9400-4WC30 3VL9400-4WC40	
	3VL5 630A	3-pole 4-pole	3VL9500-4WC30 3VL9500-4WC40	
	3VL6 800A	3-pole 4-pole	3VL9600-4WC30 3VL9600-4WC40	
	3VL7-8 1250A	3-pole 4-pole	3VL9800-4WC30 3VL9800-4WC40	

Notes

Air Circuit Breakers

4

3WT Air Circuit Breakers up to 4000 A (AC)

4/2 Introduction
4/6 3-pole, fixed-mounted and withdrawable version
4/8 Accessories and spare parts

3WL Air Circuit Breakers up to 6300 A (AC)

4/9 Introduction
4/15 Fixed mounted version, horizontal
4/16 Fixed mounted version, vertical
4/17 Withdrawable version, horizontal
4/18 Withdrawable version, vertical
4/19 Accessories and spare parts

For further technical product information:

Service & Support Portal
www.siemens.com/lowvoltage/product-support

→ Product List:
Technical specifications

→ Entry List:
Certificates / Characteristics / Download / FAQ / Manuals / Updates

Air Circuit Breakers

3WT Air Circuit Breakers up to 4000 A (AC)

Introduction

Picture 3WT Size I Fix

Picture 3WT Size II Fix

Picture 3WT Size I WD

Picture 3WT Size II WD

model			3WT 06	3WT 08	3WT 10	3WT 12	3WT 16	3WT 20	3WT 25	3WT 32	3WT 40
Frame Size											
Rating (40C, 50/60Hz)	3P/4P, Fix/WD	A	630	800	1000	1250	1600	2000	2500	3200	4000*
Operation Voltage	50/60 Hz VAC 50/60 Hz VAC (Option)	VAC VAC	500 690	500 690	500 690	500 690	500 690	500 690	500 690	500 690	500 690
Rated impulse withstand voltage U_{imp}	Main circuits Auxiliary circuits	kV kV	8 4	8 4	8 4	8 4	8 4	8 4	8 4	8 4	8 4
Utilization category			B	B	B	B	B	B	B	B	B
Rated service short-circuit breaking capacity $I_{cu} = I_{cs}$ (rms value)	ecoline @ 500 VAC stadard @ 500 VAC	kA kA	55 66	55 66	55 66	55 66	55 66	55 66	55 66	55 66	55 66
Rated short-time withstand current I_{cw} @ 50/60 Hz	ecoline @ 500 VAC 1s stadard @ 500 VAC 1s	kA kA	35 50	35 50	35 50	35 50	50	66	66	66	66
Permissible Operation ambient temperatures		C	-20...+70	-20...+70	-20...+70	-20...+70	-20...+70	-20...+70	-20...+70	-20...+70	-20...+70
Power loss	Fixed-mounted circuit Withdrawable circuit breaker	W W	25 50	40 80	60 130	90 205	120 255	140 310	325 535	420 760	902 1050
Endurance without maintenance	Mechanical Electrical (at rated current, PF 0.8)		8000 5000	8000 5000	8000 5000	8000 5000	8000 5000	6000 2000	6000 2000	6000 2000	6000 2000
Minimum interval	Tripping operation by electronic trip unit and next making operation of the circuit breaker.	ms	80	80	80	80	80	80	80	80	80
Dimension	Fixed-mounted and Withdrawable circuit breaker	W mm H mm D mm	470 320/410 350	470 320/410 350	470 320/410 350	470 320/410 350	470 320/410 350	470 420/540 350	470 420/540 350	470 420/540 350	470 420/540 350

Flexibility

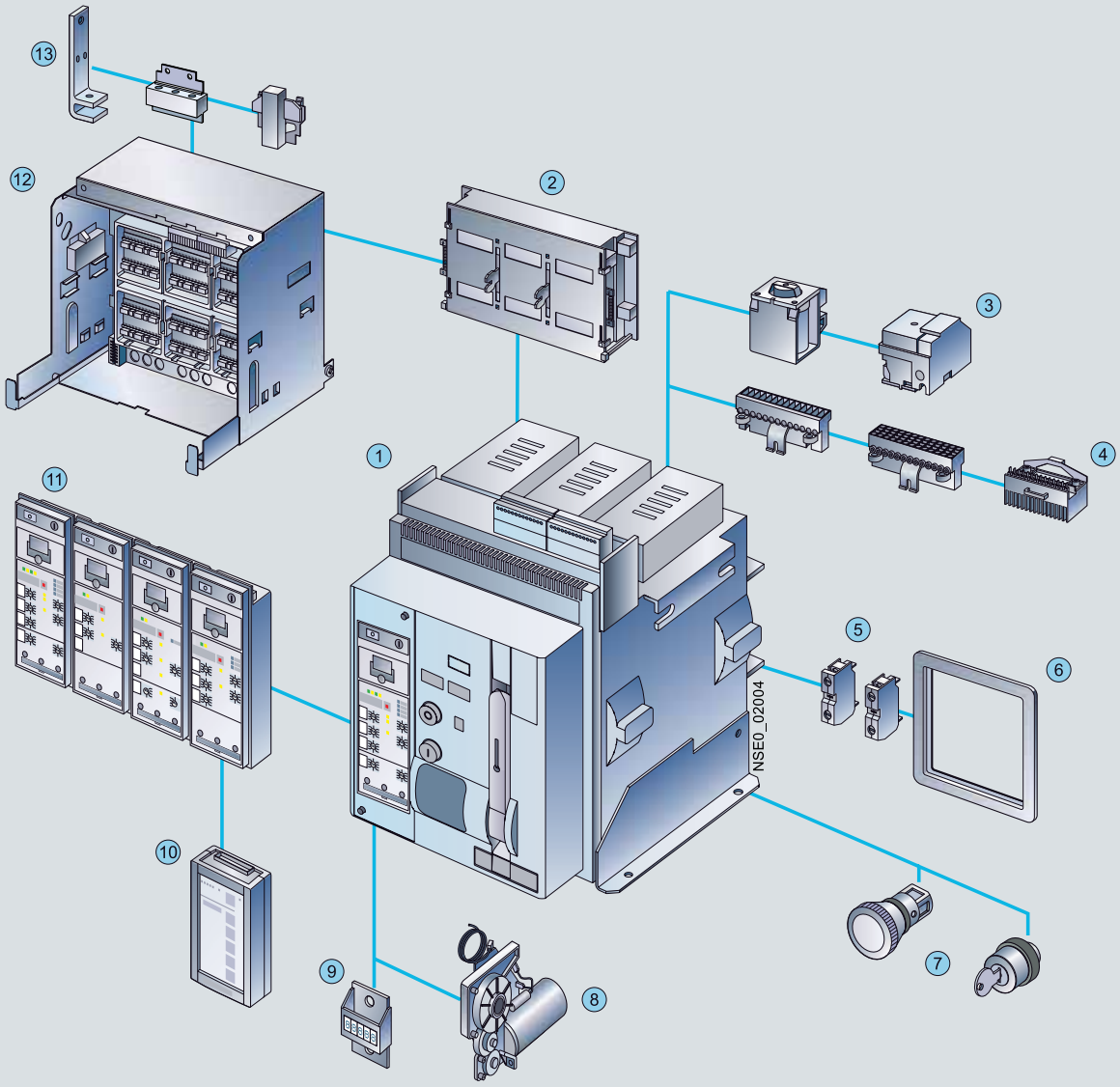
- New electronic trip units (ETU) with outstanding features.
- Only two frame sizes cover a broad range of applications from 400 A to 4000 A, up to 66 kA at 500V, 3- or 4-pole version, fixed-mounted, withdrawable version.
- All components can be combined in a modular way.

Ease of use

- User friendliness in planning, configuration, installation and operation.
- Wide range of accessories for both frame sizes can be easily retrofitted.
- Displays for all electronic trip units (ETU).

Safety and reliability

- International and standardized processes ensure highest product quality.
- Conforms to international standards and approvals.



1 Circuit breaker
2 Shutter
3 Closing solenoid, auxiliary trip unit
4 Auxiliary conductor plug-in system
5 Auxiliary switch block
6 Door sealing frame
7 EMERGENCY-STOP pushbutton, key operated
8 Motorized operating mechanism
9 Operating cycles counter
10 Manual tester for electronic trip unit (ETU)
11 Protective device with device holders, electronic trip unit (ETU)
12 Guide frame
13 Main connection, front, horizontal, vertical

Introduction

Benefits

Safety and reliability

- High degree of protection with door sealing frame in the case of exclusively local operation of the circuit breaker
- Infeed supply from above or below, as required
- Locking of the withdrawable circuit breaker against moving, as standard
- Locking of the guide frame with the circuit breaker removed, as standard
- Signaling switch for overload and short-circuit tripping with mechanical closing lockout
- High degree of protection with cover IP55
- Mechanical closing lockout after overload or short-circuit tripping as standard
- The circuit breaker is always equipped with the required number of auxiliary supply connectors

Easy to operate

- Unambiguous ON-OFF indicator with auxiliary switch for signal
- Ready-to-close indicator with signaling switch as safety standard.

Modular

Many components, such as auxiliary releases, motorized operating mechanisms, electronic trip units and current transformers can be replaced or retrofitted to adapt the circuit breaker to changing requirements.

Minimal power loss and therefore low energy consumption

The low power consumption of the electrical components also saves money when it comes to purchasing the control-power transformers. Where space is at a premium or ventilation is limited.

Application

Specifications

IEC60947-2,
GB 14048.2,
CCC Approval,
climate-proof to IEC60068-2-30,
Approval according to maritime classification
on request.

Operating conditions

The 3WT circuit breakers are climate-proof in accordance with IEC60068-2-30.

They are intended for use in enclosed areas where no severe operating conditions (e.g.dust, corrosive vapors, damaging gases) are present.

When installed in dusty or damp areas, suitable enclosures must be provided. If damaging gases (e.g. hydrogen sulfide) are present in the surrounding air, sufficient incoming fresh air must be supplied.

The permissible ambient temperatures and the associated rated currents are listed in the technical specifications.

Benefits

Versions

Breaking capacity: 55/66kA at 500V
Rated current: from 400A to 4000A
Rated operating voltage: AC500V

The 3WT circuit breakers are supplied complete with an operating mechanism, electronic trip unit and auxiliary switches and are fitted with auxiliary releases.

The non-automatic circuit breakers are supplied without electronic trip unit

Standard version

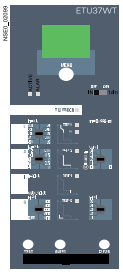
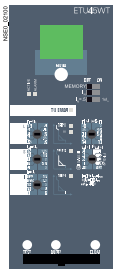
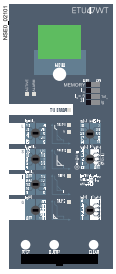
- Electronic trip unit with LSI protection, LCD display with backlight, LEDs for the cause of tripping, LED status indicator, query and test button
- Auxiliary supply connector: The circuit breaker is equipped with the required number of connectors
- Mechanical ON and OFF pushbutton
- Door sealing frame IP40
- Tripped signaling switch (1 NO)
- Ready-to-close indicator with signaling switch
- Spring charge indicator
- Auxiliary switches (2 NO + 2 NC)
- Rear horizontal main circuit connections for fixed mounted and withdrawable versions
- For 4-pole circuit breakers, the fourth pole (N) is installed on the left and is 100 % loadable
- Indication and reset button after tripping for
  - tripped signaling switch and
  - mechanical closing lockout
- User manual in English/ Chinese/ Spanish/ Russian/ Portuguese/ German/ Turkish

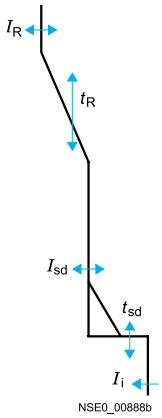
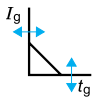
Additional features of the withdrawable version:

- Main contacts:
  Laminated receptacles in the guide frame, penetration blades on the withdrawable circuit breaker
- Position indicator in the control panel of the withdrawable circuit breaker
- Guide frame with guide rails for easy moving of the withdrawable circuit breaker
- The withdrawable circuit breaker can be locked to prevent it being pushed out of position

Standard version for non-automatic circuit breaker

- Same features as the circuit breaker, see “Standard version” but
- No electronic trip unit

Protection functions Parameterization by			ETU35WT D	ETU37WT D & S	ETU45WT/ETU47WT D & S
Functional overview of the electronic trip unit system					
 NSE0_00888b	L	**Overload protection**	✓	✓	✓
		Function can be switched on/off	--	--	--
		Setting range $I_R = I_n$ x ...	0.4-0.45-0.5-0.55-0.6-0.65-0.7-0.8-0.9-1	0.4-0.45-0.5-0.55-0.6-0.65-0.7-0.8-0.9-1	0.4-0.45-0.5-0.55-0.6-0.65-0.7-0.8-0.9-1
		Setting range for time-lag class t_R at I^2t	10 s fixed	10 s fixed	10 s fixed
		Thermal image can be switched on/off	--	--	✓
		Phase failure sensivity	at t_{sd} = 20 ms (M)	at t_{sd} = 20 ms (M)	at t_{sd} = 20 ms (M)
	N	**Neutral conductor protection**	--	✓	✓
		Function can be switched on/off	--	✓	✓
		N conductor setting range $I_n = I_n$ x ...	--	1	0.5-1
	S	Short-time delayed short-circuit protection	✓	✓	✓
		Function can be switched on/off	--	--	✓
		Setting range $I_{sd} = I_n$ x ...	1.25-1.5-2-2.5-3-4-6-8-10-12	1.25-1.5-2-2.5-3-4-6-8-10-12	1.25-1.5-2-2.5-3-4-6-8-10-12
		Setting range for delay time t_{sd}	0-M-100-200-300-400 ms	0-M-100-200-300-400 ms	0-M-100-200-300-400 ms
		Switchable short-time delayed short-circuit protection (I^2t-dependent function)	--	--	✓
		Setting range for delay time t_{sd} at I^2t	--	--	100-200-300-400 ms
	I	Instantaneous short-circuit protection	✓	✓	✓
		Function can be switched on/off	--	--	✓
		Setting range $I_i = I_n$ x ...	fixed for $I_i \geq 20$ x I_n, max. 50 kA	fixed for $I_i \geq 20$ x I_n, max. 50 kA	1.5-2.2-3-4-6-8-10-12-0.8x I_{cs}
 NSE0_00889a	G	Ground-fault protection	--	✓ fixed mounted	✓ (only ETU47WT)
		Tripping function can be switched on/off	--	✓	✓ (only ETU47WT)
		Detection of the ground-fault current through summation current formation with internal or external neutral conductor transformer	--	✓	✓ (only ETU47WT)
		Detection of ground-fault current through external transformer	--	--	✓ (only ETU47WT)
		Setting range of the operating current I_g for release	--	OFF-100-300-600-900-1200	OFF-100-300-600-900-1200 (only ETU47WT)
		Setting range of the delay time t_g	--	100-200-300-400-500 ms	100-200-300-400-500 ms (only ETU47WT)
		Switchable ground-fault protection characteristic curve (I^2t-dependent function)	--	--	✓ (only ETU47WT)
		Setting range for delay time t_g at I^2t	--	--	100-200-300-400-500 ms (only ETU47WT)
LCD					
		LCD, with backlight	✓	✓	✓
LED display					
NSE00890		Electronic trip unit active	✓	✓	✓
		Alarm	✓	✓	✓
		ETU fault	✓	✓	✓
		L-release	✓	✓	✓
		S-release	✓	✓	✓
		I-release	✓	✓	✓
		N-release	--	✓	✓
		G-release	--	✓	✓

Delay time figures given in ms.
M = Motor protection, corresponds to 20 ms.
D = Rotary coding switch.
D & S = Rotary coding and slide switch.

✓ Available.
-- Not available.

Air Circuit Breakers

3WT Air Circuit Breakers up to 4000 A (AC)

3-pole, fixed-mounted and withdrawable version

Size	Rated current I_n	Breaking capacity $I_{cu} = I_{cs}$	Short-time withstand current I_{cw} / 1s, 500V	Fixed mounted version 3-pole* Order No.	Basic price per PU (THB)	Withdrawable version 3-pole* Order No.	Basic price per PU (THB)
	A	kA	kA				
ETU35WT							
Horizontal main circuit connection Ecoline							
I	400 630 800 1000 1250	55	50kA for 0,5s	3WT80 40-5UA30-0AA2 3WT80 60-5UA30-0AA2 3WT80 80-5UA30-0AA2 3WT80 00-5UA30-0AA2 3WT80 20-5UA30-0AA2		3WT80 40-5UA34-5AB2 3WT80 60-5UA34-5AB2 3WT80 80-5UA34-5AB2 3WT80 00-5UA34-5AB2 3WT80 20-5UA34-5AB2	
Horizontal main circuit connection							
I	400 630 800 1000 1250 1600	66	66	3WT80 61-5UA30-0AA2 3WT80 81-5UA30-0AA2 3WT81 01-5UA30-0AA2 3WT81 21-5UA30-0AA2 3WT81 61-5UA30-0AA2		3WT80 41-5UA34-5AB2 3WT80 61-5UA34-5AB2 3WT80 81-5UA34-5AB2 3WT81 01-5UA34-5AB2 3WT81 21-5UA34-5AB2 3WT81 61-5UA34-5AB2	
II	2000 2500 3200	66	66	3WT82 02-5UA30-0AA2 3WT82 52-5UA30-0AA2 3WT82 22-5UA30-0AA2		3WT82 02-5UA34-5AB2 3WT82 52-5UA34-5AB2 3WT83 22-5UA34-5AB2	
Horizontal main circuit connection							
II II	3800 4000	66 66	66 66	3WT84 02-5UA32-0AA2		3WT84 02-5UA36-5AB2	
ETU37WT* **							
Horizontal main circuit connection Ecoline							
I	400 630 800 1000 1250	55	50kA for 0,5s	3WT80 40-6UA30-0AA2 3WT80 60-6UA30-0AA2 3WT80 80-6UA30-0AA2 3WT80 00-6UA30-0AA2 3WT80 20-6UA30-0AA2		3WT80 40-6UA34-5AB2 3WT80 60-6UA34-5AB2 3WT80 80-6UA34-5AB2 3WT80 00-6UA34-5AB2 3WT80 20-6UA34-5AB2	
Horizontal main circuit connection							
I	400 630 800 1000 1250 1600	66	66	3WT80 41-6UA30-0AA2 3WT80 61-6UA30-0AA2 3WT80 81-6UA30-0AA2 3WT81 01-6UA30-0AA2 3WT81 21-6UA30-0AA2 3WT81 61-6UA30-0AA2		3WT80 41-6UA34-5AB2 3WT80 61-6UA34-5AB2 3WT80 81-6UA34-5AB2 3WT81 01-6UA34-5AB2 3WT81 21-6UA34-5AB2 3WT81 61-6UA34-5AB2	
II	2000 2500 3200	66	66	3WT82 02-6UA30-0AA2 3WT82 52-6UA30-0AA2 3WT83 22-6UA30-0AA2		3WT82 02-6UA34-5AB2 3WT82 52-6UA34-5AB2 3WT83 22-6UA34-5AB2	
Horizontal main circuit connection							
II	4000	66	66	3WT84 02-6UA32-0AA2		3WT84 02-5UA36-5AB2	

Option	
Electronic Trip Unit / ETU	ETU35WT: protection function LSI with LCD display ETU37WT: protection function LSING 2) with LCD display
Following accessories are included	1. Motor and closing solenoid : 220-240 V AC 50/60 Hz, 220-250 V DC 2. Shunt release “F” : 220-240 V AC 50/60 Hz, 220-250 V DC 3. Door sealing frame IP40, 4. Auxiliary switch 2 NO + 2 NC

* For 4-pole Circuit Breaker, the price is 1.4 times of 3-pole type.

** For further information and price, please contact your local Siemens partner.

*** Neutral transformers for ground - fault protection are not included.

Size	Rated current I_n	Breaking capacity $I_{cu} = I_{cs}$	Short-time withstand current I_{cw} / 1s, 500V	Fixed mounted version 3-pole* Order No.	Basic price per PU (THB)	Withdrawable version 3-pole* Order No.	Basic price per PU (THB)
	A	kA	kA				
ETU35WT							
Horizontal main circuit connection							
I	400 630 800 1000 1250	55	50kA for 0,5s	3WT80 40- 3WT80 60- 3WT80 80- 3WT80 00- 3WT80 20-		3WT80 40- 3WT80 60- 3WT80 80- 3WT80 00- 3WT80 20-	
Horizontal main circuit connection							
I	400 630 800 1000 1250 1600	66	66	3WT80 41- 3WT80 61- 3WT80 81- 3WT81 01- 3WT81 21- 3WT81 61-		3WT80 41- 3WT80 61- 3WT80 81- 3WT81 01- 3WT81 21- 3WT81 61-	
II	2000 2500 3200	66	66	3WT82 02- 3WT82 52- 3WT82 22-		3WT82 02- 3WT82 52- 3WT83 22-	
Horizontal main circuit connection							
II II	3800 4000	66 66	66 66	3WT84 02-		3WT84 02-	
ETU37WT* **							
Horizontal main circuit connection							
I	400 630 800 1000 1250	55	50kA for 0,5s	3WT80 40- 3WT80 60- 3WT80 80- 3WT80 00- 3WT80 20-		3WT80 40- 3WT80 60- 3WT80 80- 3WT80 00- 3WT80 20-	
Horizontal main circuit connection							
I	400 630 800 1000 1250 1600	66	66	3WT80 41- 3WT80 61- 3WT80 81- 3WT81 01- 3WT81 21- 3WT81 61-		3WT80 41- 3WT80 61- 3WT80 81- 3WT81 01- 3WT81 21- 3WT81 61-	
II	2000 2500 3200	66	66	3WT82 02- 3WT82 52- 3WT83 22-		3WT82 02- 3WT82 52- 3WT83 22-	
Horizontal main circuit connection							
II	4000	66	66	3WT84 02-		3WT84 02-	

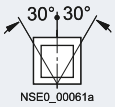
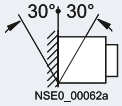
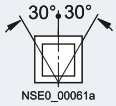
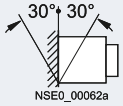
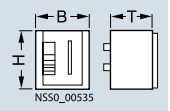
Option					Add. Price				Add. Price
Electronic Trip Unit / ETU	ETU35WT: LSI with LCD display	5				5			
	ETU37WT: LSING** with LCD display***	6				6			
	ETU45WT: LSIN** with LCD display and additional features	7				7			
	ETU47WT: LSING** with LCD display and additional features***	8				8			
Following accessories are included	Manual operating mechanism with mechanical closing, without 1st and 2nd auxiliary releases, with auxiliary switch 2 NO + 2 NC		AA0				AA0		
	Motor operated mechanism with mechanical and electrical closing. Motor and closing solenoid 220-240 V AC 50/60 Hz, 220-250 V DC, Shunt release "F" 220-240 V AC 50/60 Hz, 220-250 V DC with auxiliary switch 2 NO + 2 NC		UA3				UA3		
	with door sealing frame IP40			0AA2				5AA2	
	with door sealing frame IP40, safety lock device CES instead of OFF button			0AB2				5AB2	
	with door sealing frame IP40, sealing cap over OFF button and mutual mechanical interlock for 3WT circuit breaker			0AC2				5AF2	

* For 4-pole Circuit Breaker, the price is 1.4 times of 3-pole type.
** For further information and price, please contact your local Siemens partner.
*** Neutral transformers for ground - fault protection are not included.

Accessories and spare parts

Designation		Order No.	Basic price per PU (THB)
Internal accessories			
	5-digit operating cycles counter	3WT98 64-0CA00	
	Auxiliary release		
	Shunt release, 24 VDC	3WT98 51-1JB00	
	Shunt release, 110 … 125 VDC/VAC	3WT98 51-1JH00	
	Shunt release, 220 … 240 VDC/VAC	3WT98 53-1JM00	
	Undervoltage release, 220 … 240 VDC/VAC	3WT98 54-1JK00	
	Undervoltage release, 380 … 415 VDC/VAC	3WT98 54-1JM00	
	Motorized operating		
	24 VDC	3WT98 32-1JB00	
	110 … 125 VDC/VAC	3WT98 32-1JH00	
	220 … 240 VDC/VAC	3WT98 32-1JK00	
	Electrical closing		
	24 VDC	3WT98 33-1JB00	
	110 … 125 VDC/VAC	3WT98 33-1JH00	
	220 … 240 VDC/VAC	3WT98 33-1JK00	
	For withdraw-able circuit breaker		
	Position indicator switch	3WT98 84-1JC10	
	Shutters 3 Pole upto 1600A	3WT98 84-3CA00	
	2000A ... 3800A	3WT98 84-3DA00	
External accessories			
	Mutual mechanical interlock		
	For one fixed-mounted circuit breaker with a Bowden wire (2 m)	3WT98 66-3JA00	
	For one withdrawable circuit breaker with a Bowden wire (2 m)	3WT98 66-4JA00	
	Door sealing frame IP40	3WT98 86-0JA00	
	Protective covers, IP55	3WL9 111-0AP02-0AA0	
	Current transformers for neutral conductor	ACB Frame Size	
	overload protection and ground-fault protection		
	external neutral conductor without copper busbarsProtective covers, IP55	I	3WL9 111-0AA21-0AA0
		II	3WL9 111-0AA22-0AA0

Size I Size II Size III

Air circuit breakers						
Size			3WL air circuit breakers/non-automatic air circuit breakers up to 6300 A (AC), IEC I, II, III			3WL non-automaticair circuit breakers up to 4000 A (DC) II
Rated current I_n	A		630, 800, 1000, 1250, 1600, 2000, 2500, 3200, 4000, 5000, 6300			1000, 2000, 4000
Number of poles			3-pole, 4-pole			3-pole, 4-pole
Rated operational voltage U_e	V AC V DC		... 690/1000/1150 --			-- ... 1000
Rated ultimate short-circuit breaking capacity at 500 V AC	kA		Size I 55/66/85	Size II 66/80/100	Size III 100/150 (3-pole), 130 (4-pole)	30/25/20 (at 300/600/1000V DC)
Endurance	Operating cycles		up to 20000	15000	10000	15000
Mounting position			 NSE0_00061a	 NSE0_00062a		 NSE0_00061a  NSE0_00062a
Degree of protection With cover Without cover (with door sealing frame)			IP55 IP41			IP55 IP41
Dimensions 3-/4-pole	Fixed-mounted	W mm H mm D mm	320/410 434 291	460/590 434 291	704/914 434 291	460/590 434 291
 NSS0_00535	Withdrawable	H mm D mm	465.5 471	465.5 471	465.5 471	465.5 471

NSE0_01106a
NSE0_01107a
NSE0_01108a
NSE0_01109a
NSE0_01111a

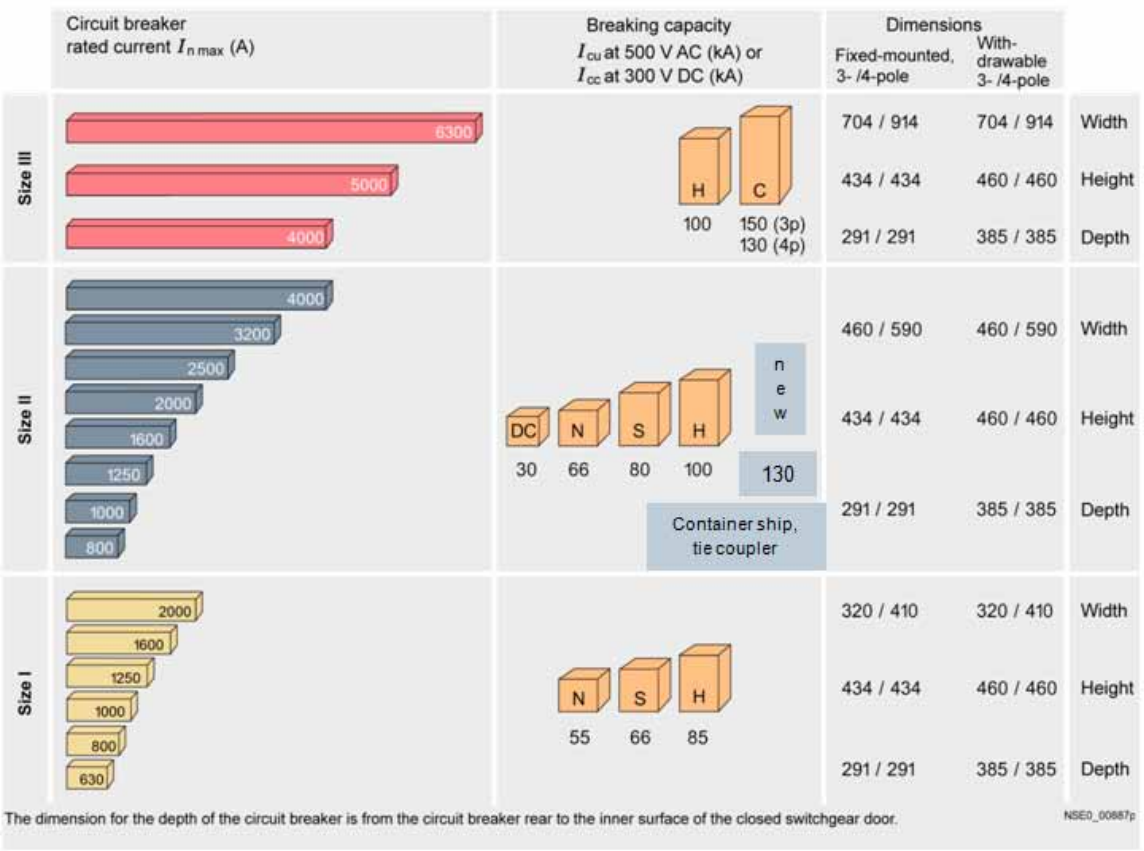
Electronic Trip Units for 3WL circuit breakers					
Type	ETU15B [1]	ETU25B	ETU27B	ETU45B	ETU76B
Overload protection	✓	✓	✓	✓	✓
Short-time delayed short-circuit protection	--	✓	✓	✓	✓
Instantaneous short-circuit protection	✓	✓	✓	✓	✓
Neutral conductor protection	--	--	✓	✓	✓
Ground-fault protection	--	--	✓	❑	❑
Zone Selective Interlocking	--	--	--	❑	❑
LCD, 4-line	--	--	--	❑	--
LCD, graphic	--	--	--	--	✓
Communication	--	--	--	❑	❑
Measurement function Plus	--	--	--	❑	❑
Selectable parameter sets	--	--	--	--	✓
Parameters freely programmable	--	--	--	--	✓
Cubicle BUS	--	--	--	✓	✓

✓ Standard
-- Not available
❑ Optional

[1] ETU15B cannot be used with 3WL circuit breakers, size III.

3WL air circuit breakers/non-automatic air circuit breakers according to UL 489 up to 5000 A, see Catalog LV 16.

Introduction



Type		3WL12
Breaking capacity		DC
Short-circuit breaking capacity		
Up to 220V DC I_{cc}	kA	35
Up to 300V DC I_{cc}	kA	30
Up to 600V DC I_{cc}	kA	25
Up to 1000V DC I_{cc}	kA	20
Rated short-time withstand current I_{cw}		
0.5s	kA	--
1s	kA	35[5]/30[6]/25[7]/20[8]
2s	kA	--
3s	kA	--

* For DC-application, please contact your local Siemens partner.

(N) Circuit breaker with ECO breaking capacity N
(S) Circuit breaker with standard breaking capacity S
(H) Circuit breaker with high breaking capacity H
(C) Circuit breakers with very high breaking capacity C
(DC) Non-automatic air circuit breakers with DC breaking capacity

These breaking capacities are indicated in the corresponding tables by the symbols shown on orange backgrounds.

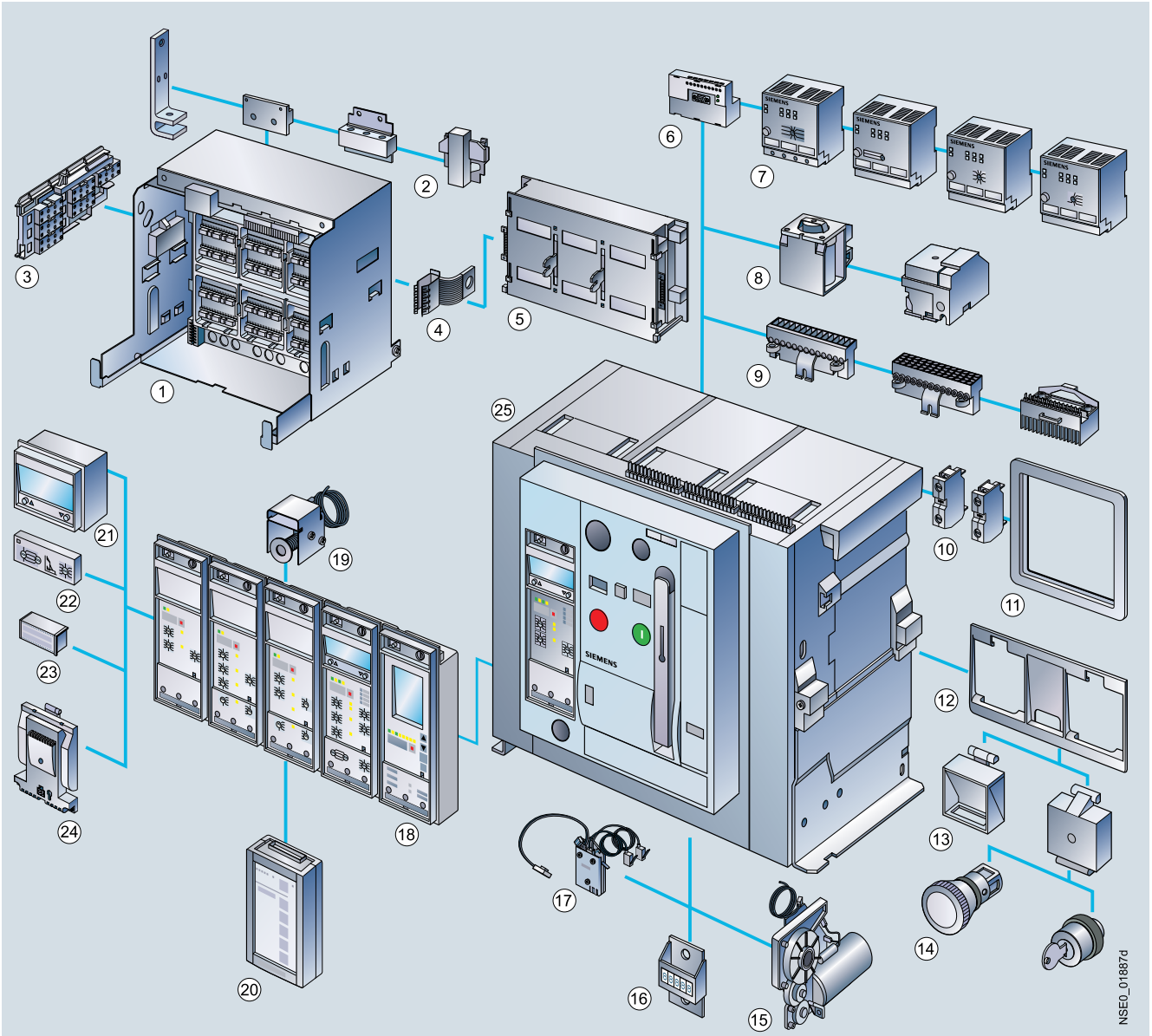
Note:
For further technical specifications see the configuration manual "Air Circuit Breakers". Free download from:
www.siemens.com/lowvoltage/manuals

Abbreviations* (functions)	English long text	Explanation
L	Long Time Delay	Overload protection
S	Short Time Delay	Short-Circuit protection (Short-time delayed)
I	Instantaneous	Short-circuit protection (Instantaneous)
N	Neutral Protection	Neutral conductor Protection
N	Ground Fault	Ground-fault protection

* Designations according to IEC 60947-2, Appendix K.

[1] Size II with $I_{n\,max} \leq 2500$ A.
[2] Size II with $I_{n\,max} = 3200$ A and $I_{n\,max} = 4000$ A.
[3] At a rated voltage of ≥ 690V the I_{cw} value of the circuit breaker cannot be greater than the I_{cu} or I_{cs} value at 690 V.
[4] Rated operational voltage $U_e = 1150$ V.
[5] At $U_e = 220$V DC.
[6] At $U_e = 300$V DC.
[7] At $U_e = 600$V DC.
[8] At $U_e = 1000$V DC.
[9] Values also apply to 690 V + 20 % version with Z-option "A16".

3WL air circuit breakers:
Superior individual products integrated into uniform power distribution systems
- up to and including industry-specific industrial and infrastructure solutions



① Guide frame
② Main circuit connection front, flange, horizontal, vertical
③ Position signaling switch
④ Grounding connection, leading
⑤ Shutters
⑥ COM15 PROFIBUS module or COM16 MODBUS module*
⑦ External Cubicle BUS modules*
⑧ Closing coil, auxiliary release
⑨ Auxiliary conductor plug-in system
⑩ Auxiliary switch block
⑪ Door sealing frame
⑫ Interlocking set for mechanical ON/OFF
⑬ Transparent panel, function insert
⑭ EMERGENCY-STOP pushbutton, key operated
⑮ Motorized operating mechanism
⑯ Operating cycles counters
⑰ Breaker status sensor (BSS)
⑱ Protective device with device holder, Electronic Trip Unit (ETU)
⑲ Remote reset solenoid*
⑳ Breaker data adapter (BDA Plus)*
㉑ Four-line display
㉒ Ground-fault protection module
㉓ Rating plug
㉔ Measurement function module
㉕ Air circuit breaker

* For other option, please contact your siemens local partner

Introduction

Position signal contact for guide frame

Position signal contacts can be retrofitted to the guide frame. These can be used to analyze the position of the circuit breaker in the guide frame.

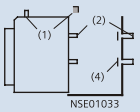
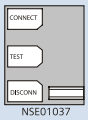
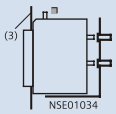
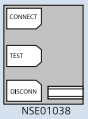
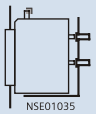
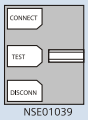
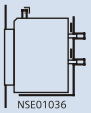
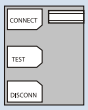
Mutual mechanical circuit breaker interlocking

The module for mutual mechanical interlocking can be implemented for two or three SENTRON WL circuit breakers and is simple to adapt to the respective version. Fixed mounted and withdrawable circuit breakers are compatible and can be implemented together in a single system. This is also possible with circuit breakers 3WT. The circuit breakers can be installed either next to one another or on top of one another, whereby the distance between the circuit breakers is determined only by the length of the Bowden wire.
The Bowden wire are available upto a length of 6m. Lockout signal are forwarded over the Bowden wires with withdrawable circuit breakers the interlocking is only effective in connected position. The mechanical service life of Bowden wires is 10000 operating cycles.
For the mutual mechamical interlocking of circuit breakers also see the adjacent table.

Phase barriers

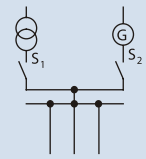
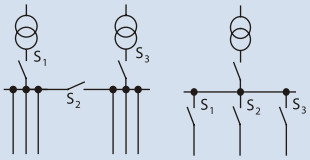
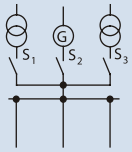
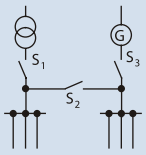
Plant manufacturers can make phase barriers out of insulation material as a protection against internal arcs
Guiding grooves are provided at the rear of the fixed-mounted circuit breaker or guide frame.

Position of the withdrawable circuit breaker in the guide frame

	Representation	Position indicat or	Main circuit	Auxiliary circuit	Cubicle door	Shutter
Maintenance position	 NSE01033	 NSE01037	Disconnected	Disconnected	Open	Closed
Disconnected position	 NSE01034	 NSE01038	Disconnected	Disconnected	Closed	Closed
Test position	 NSE01035	 NSE01039	Disconnected	Connected	Closed	Closed
Connected position	 NSE01036	 NSE01040	Connected	Connected	Closed	Open

(1) Auxiliary circuit
(2) Main circuit
(3) Cubicle door
(4) Shutter

Mutual mechanical interlocking of circuit breaker-examples

Interlocking of two mutual circuit breakers	Interlocking of three non- mutual circuit breakers	Interlocking of three mutual circuit breakers	Interlocking of three circuit breakers, two of which are mutual
 NSE01041	 NSE01042 NSE01043	 NSE01044	 NSE01045

Arc chute cover

The arc chute cover is abailable as an optional features for the guide frame.
It serves to protect switchgear parts that are located directly next to the circuit breaker.

COM15 / COM16

By means of the PROFIBUS module COM15 or MODBUS module COM16 the circuit breakers can be connected directly to the PROFIBUS-DP or Modbus network. The COM modules support the innovative DPV1functions. This guarantee the simplest commissioning and diagnosis of the circuit-breaker as well as facilitates optimal visualization of the data.

Metering Function PLUS:

The integrated metering function can be used with all trip units, equipped with CubicleBUS interface. It is an interesting alternative to external multifunction metering devices. Measured values include currents, voltages, powers, energy cos o and frequency

The data can be shown on the display of the overcurrent releases, transmitted to the PROFIBUS-DP through the COM15 (or MODBUS through COM16) and transferred to the outputs external CubicleBUS modules.

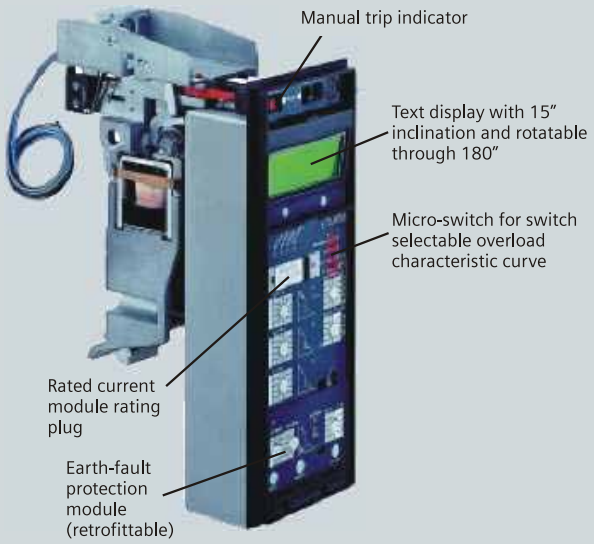
Measured parameter	Range	Accuracy
Currents I L1, IL2, IL 3, IN, Ig	30 ..... 8000 A	± 1% of measurement range.
Line Voltages VL12,VL23,VL31	15 ..... 130V and 130 .... 1150 V	± 1% of measurement range.
Phase Volatage VL1N, VL2N, VL3N	10....75V and 75....700 V	± 1% of measurement range.
Present average of line voltages V avg	10....75V and 75 ...700 V	± 1% of measurement range.
Apparent Power SL1,SL2,SL3	13....8000 kVA	± 2% of measurement range.
Total apparent power	13.....24000kVA	± 2% of measurement range.
Active power PL1, PL2,PL3	-8000 ....+ 8000 kW	± 2% of measurement range. (cosØ > 0.6)
Total active power	-24000 .... + 24000 kW	± 2% of measurement range. (cosØ > 0.6)
Total reactive power	-20000 .... + 20000 kVar	± 4% of apparent power
Reactive power QL1, QL2 QL3	-6400 ..... +6400 kVar	± 2% of apparent power
Power factor Cos Ø 1, Cos Ø 2, Cos Ø 3	-0.6 .... 1 .... +0.6	± 4%
Power factor total	-0.6 .... 1 .... +0.6	± 4%
Long term average of currents II1, II2, II3	30 ..... 8000 A	± 1% of measurement range.
Long term average of 3-phase current	30 ..... 8000 A	± 1% of measurement range.
Long term average of active power in L1, L2, L3.	13 ..... 8000 kW	± 2% of measurement range. (cosØ > 0.6)
Long term average of active power 3 phase.	13 ..... 8000 kW	± 2% of measurement range.
Long term average of apparent power in L1, L2, L3 and Total apparent power	13 ..... 8000 kVA	± 2% of measurement range.
Long term average of reactive power 3 phase.	- 8000 ..... + 8000 kVar	± 2% of apparent power
Energy consumed	1 ..... 10000 MWh	± 2%
Energy delivered	1 ..... 10000 MWh	± 2%
Reactive energy consumed	1..... 10000 MVarh	± 2%
Reactive energy delivered	1..... 10000 Mvarh	± 2%
Frequency	15 .....40 Hz 40 ---- 70 Hz 70 ---- 440 Hz	± 0.1 Hz
Distortion factor of current and voltage	2 .... 100%	± 2% of measurement range upto 29th harmonic
Phase unbalance of current and voltage	2 ..... 150%	± 1% of displayed value.

Introduction

Rating Plug-in

Size I	Size II	Size III
250A	250A	
315A	315A	
400A	400A	
500A	500A	
630A	630A	
700A	700A	
800A	800A	
1000A	1000A	
1250A	1250A	1250A
1600A	1600A	1600A
	2000A	2000A
	2500A	2500A
	3200A	3200A
		4000A
		5000A
		6300A

Sample configuration of an ETU 45B


Manual trip indicator
Text display with 15" inclination and rotatable through 180"
Micro-switch for switch selectable overload characteristic curve
Rated current module rating plug
Earth-fault protection module (retrofittable)

example : 1000A - 3WL -> up t o 1000A
rating Plug 250A ; Ir setting = 0.4 X 250 = 100A

Application:

Cost-effective intelligent allrounder for building and all types of industrial applications- "Cubicle BUS integrated".

Properties:

1. Adjustable time-lag class for overload protection
2. Short-time delayed short-circuit protection, adjustable from 1.25 ... 12 x I_n
3. Instantaneous short-circuit protection adjusting 12 I_n /Max/Off
4. Replaceable Rating Plug allows instant adaptability to required plant currents, thus ensuring overload protection of 100 A to 6300 A.
5. Switch-selectable characteristic of the overload and short-time delay short-circuit range (current discriminate) for finer selectivity conditioning to downstream fuses or protective devices
6. Thermal memory as restart protection in case of tripped motor circuits
7. Connectable and adjustable neutral conductor protection
8. Modular earth-fault protection, with separately adjustable alarm and trip function
9. Communication interface, metering function (Plus), connection of external modules as option or retrofit option.
10. Optional high-contrast display with viewing angle adjustment
11. Overload indicator
12. Display of cause of trip through LED
13. Option for testing the release
14. Setting of protective functions by means of rotary or slide switch.

Size	Max. rated circuit breaker current $I_{n\ max}$	Rated current I_n	Breaking capacity $I_{cu} = I_{cs}$ at 500V	Selection and ordering data $I_{cu} = I_{cs}$ at 500V Order No.	Basic price per PU (THB)	Breaking capacity $I_{cu} = I_{cs}$ at 500V	Selection and ordering data $I_{cu} = I_{cs}$ at 500V Order No.	Basic price per PU (THB)	Breaking capacity $I_{cu} = I_{cs}$ at 500V	Selection and ordering data $I_{cu} = I_{cs}$ at 500V Order No.	Basic price per PU (THB)
	A	A	kA			kA			kA		
Horizontal main circuit connection, fixed mounted version											
I	630	630	55	3WL1106-2		66	3WL1106-3		85	3WL1106-4	
	800	800		3WL1108-2			3WL1108-3			3WL1108-4	
	1000	1000		3WL1110-2			3WL1110-3			3WL1110-4	
	1250	1250		3WL1112-2 2-0AA0			3WL1112-3 2-0AA0			3WL1112-4 2-0AA0	
	1600	1600		3WL1116-2			3WL1116-3			3WL1116-4	
	2000	2000		3WL1120-2			3WL1120-3			3WL1120-4	
II	800	800	66	3WL1208-2		80	3WL1208-3		100	3WL1208-4	
	1000	1000		3WL1210-2			3WL1210-3			3WL1210-4	
	1250	1250		3WL1212-2			3WL1212-3			3WL1212-4	
	1600	1600		3WL1216-2 2-0AA0			3WL1216-3 2-0AA0			3WL1216-4 2-0AA0	
	2000	2000		3WL1220-2			3WL1220-3			3WL1220-4	
	2500	2500		3WL1225-2			3WL1225-3			3WL1225-4	
	3200	3200		3WL1232-2			3WL1232-3			3WL1232-4	
	4000	4000		3WL1240-2 1-0AA0			3WL1240-3 1-0AA0			3WL1240-4 1-0AA0	
II	1600	1600	130	3WL1216-5							
	2000	2000		3WL1220-5 2-0AA0							
	2500	2500		3WL1225-5							
	3200	3200		3WL1232-5							
III	4000	4000	100	3WL1340-4							
	5000	5000		3WL1350-4 2-0AA0							
	6300	6300		3WL1363-4 1-0AA0							

Option				Add. Price		Add. Price		Add. Price
Electronic Trip Unit	**ETU-versions without ground-fault**							
	ETU15B: protection function LI	BB						
	ETU25B: protection function LSI	CB						
	ETU45B: protection function LSIN	EB						
	ETU45B: protection function LSIN with 4-line display, LCD	FB						
	ETU-versions with ground-fault							
	ETU27B: protection function LSI	DG						
	ETU45B: protection function LSING***	EG						
	ETU45B: protection function LSING with 4-line display, LCD***	FG						
	Number of poles							
	3-pole version		3					
	4-pole version		4					

* For addtional option see Catalog Siemens LV 10
** For further information and price, please contact your local Siemens partner.
*** Neutral transformers for ground - fault protection are not included

Fixed mounted version, vertical

Size	Max. rated circuit breaker current $I_{n\,max}$	Rated current I_n	Breaking capacity $I_{cu} = I_{cs}$	Selection and ordering data $I_{cu} = I_{cs}$ at 500V Order No.	Basic price per PU (THB)	Breaking capacity $I_{cu} = I_{cs}$	Selection and ordering data $I_{cu} = I_{cs}$ at 500V Order No.	Basic price per PU (THB)	Breaking capacity $I_{cu} = I_{cs}$	Selection and ordering data $I_{cu} = I_{cs}$ at 500V Order No.	Basic price per PU (THB)
	A	A	kA			kA			kA		
Vertical main circuit connection, fixed mounted version											
I	630	630	55	3WL1106-2		66	3WL1106-3		85	3WL1106-4	
	800	800		3WL1108-2			3WL1108-3			3WL1108-4	
	1000	1000		3WL1110-2			3WL1110-3			3WL1110-4	
	1250	1250		3WL1112-2 1-0AA0			3WL1112-3 3 1-0AA0			3WL1112-4 1-0AA0	
	1600	1600		3WL1116-2			3WL1116-3			3WL1116-4	
	2000	2000		3WL1120-2			3WL1120-3			3WL1120-4	
II	800	800	66	3WL1208-2		80	3WL1208-3		100	3WL1208-4	
	1000	1000		3WL1210-2			3WL1210-3			3WL1210-4	
	1250	1250		3WL1212-2			3WL1212-3			3WL1212-4	
	1600	1600		3WL1216-2 1-0AA0			3WL1216-3 3 1-0AA0			3WL1216-4 1-0AA0	
	2000	2000		3WL1220-2			3WL1220-3			3WL1220-4	
	2500	2500		3WL1225-2			3WL1225-3			3WL1225-4	
	3200	3200		3WL1232-2			3WL1232-3			3WL1232-4	
	4000	4000		3WL1240-2			3WL1240-3			3WL1240-4	
II	1600	1600	130	3WL1216-5							
	2000	2000		3WL1220-5 1-0AA0							
	2500	2500		3WL1225-5							
	3200	3200		3WL1232-5							
III	4000	4000	100	3WL1340-4							
	5000	5000		3WL1350-4 1-0AA0							
	6300	6300		3WL1363-4							

Option				Add. Price	Add. Price	Add. Price
Electronic Trip Unit	**ETU-versions without ground-fault**					
	ETU15B: protection function LI	BB				
	ETU25B: protection function LSI	CB				
	ETU45B: protection function LSIN	EB				
	ETU45B: protection function LSIN with 4-line display, LCD	FB				
	ETU-versions with ground-fault					
	ETU27B: protection function LSI	DG				
	ETU45B: protection function LSING***	EG				
	ETU45B: protection function LSING with 4-line display, LCD***	FG				
	Number of poles					
	3-pole version		3			

* For addtional option see Catalog Siemens LV 10
** For further information and price, please contact your local Siemens partner.
*** Neutral transformers for ground - fault protection are not included.

Size	Max. rated circuit breaker current $I_{n\,max}$	Rated current I_n	Breaking capacity $I_{cu} = I_{cs}$	Selection and ordering data $I_{cu} = I_{cs}$ at 500V Order No.	Basic price per PU (THB)	Breaking capacity $I_{cu} = I_{cs}$	Selection and ordering data $I_{cu} = I_{cs}$ at 500V Order No.	Basic price per PU (THB)	Breaking capacity $I_{cu} = I_{cs}$	Selection and ordering data $I_{cu} = I_{cs}$ at 500V Order No.	Basic price per PU (THB)
	A	A	kA			kA			kA		
Horizontal main circuit connection, withdrawable version with guide frame											
I	630	630	55	3WL1106-2			3WL1106-3		85	3WL1106-4	
	800	800		3WL1108-2			3WL1108-3			3WL1108-4	
	1000	1000		3WL1110-2			3WL1110-3			3WL1110-4	
	1250	1250		3WL1112-2 6-0AA0			3WL1112-3 6-0AA0			3WL1112-4 6-0AA0	
	1600	1600		3WL1116-2			3WL1116-3			3WL1116-4	
	2000	2000		3WL1120-2			3WL1120-3			3WL1120-4	
II	800	800	66	3WL1208-2		80	3WL1208-3		100	3WL1208-4	
	1000	1000		3WL1210-2			3WL1210-3			3WL1210-4	
	1250	1250		3WL1212-2			3WL1212-3			3WL1212-4	
	1600	1600		3WL1216-2 6-0AA0			3WL1216-3 1-0AA0			3WL1216-4 6-0AA0	
	2000	2000		3WL1220-2			3WL1220-3			3WL1220-4	
	2500	2500		3WL1225-2			3WL1225-3			3WL1225-4	
	3200	3200		3WL1232-2			3WL1232-3			3WL1232-4	
	4000	4000		3WL1240-2 7-0AA0			3WL1240-3 7-0AA0			3WL1240-4 7-0AA0	
II	1600	1600	130	3WL1216-5							
	2000	2000		3WL1220-5 7-0AA0							
	2500	2500		3WL1225-5							
	3200	3200		3WL1232-5							
III	4000	4000	100	3WL1340-4							
	5000	5000		3WL1350-4 6-0AA0							
	6300	6300		3WL1363-4 7-0AA0							

Option				Add. Price		Add. Price		Add. Price
Electronic Trip Unit	**ETU-versions without ground-fault**							
	ETU15B: protection function LI	BB						
	ETU25B: protection function LSI	CB						
	ETU45B: protection function LSIN	EB						
	ETU45B: protection function LSIN with 4-line display, LCD	FB						
	ETU-versions with ground-fault							
	ETU27B: protection function LSI	DG						
	ETU45B: protection function LSING***	EG						
	ETU45B: protection function LSING with 4-line display, LCD***	FG						
	Number of poles							
	3-pole version		3					
	4-pole version***		4					

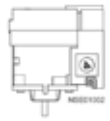
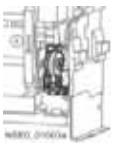
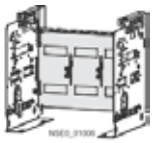
* For addtional option see Catalog Siemens LV 10
** For further information and price, please contact your local Siemens partner.
*** Neutral transformers for ground - fault protection are not included.
**** For 4 pole circuit breaker, the price is 1.4 times of 3-pole type.

Fixed mounted version, vertical

Size	Max. rated circuit breaker current $I_{n\,max}$	Rated current I_n	Breaking capacity $I_{cu} = I_{cs}$ at 500V	Selection and ordering data Order No.		Basic price per PU (THB)	Breaking capacity $I_{cu} = I_{cs}$ at 500V	Selection and ordering data Order No.		Basic price per PU (THB)	Breaking capacity $I_{cu} = I_{cs}$ at 500V	Selection and ordering data Order No.		Basic price per PU (THB)
	A	A	kA				kA				kA			
Vertical main circuit connection, fixed mounted version														
I	630	630	55	3WL1106-2			66	3WL1106-3			85	3WL1106-4		
	800	800		3WL1108-2				3WL1108-3				3WL1108-4		
	1000	1000		3WL1110-2				3WL1110-3				3WL1110-4		
	1250	1250		3WL1112-2	7-0AA0			3WL1112-3	7-0AA0			3WL1112-4	7-0AA0	
	1600	1600		3WL1116-2				3WL1116-3				3WL1116-4		
	2000	2000		3WL1120-2				3WL1120-3				3WL1120-4		
II	800	800	66	3WL1208-2			80	3WL1208-3			100	3WL1208-4		
	1000	1000		3WL1210-2				3WL1210-3				3WL1210-4		
	1250	1250		3WL1212-2				3WL1212-3				3WL1212-4		
	1600	1600		3WL1216-2	7-0AA0			3WL1216-3	7-0AA0			3WL1216-4	7-0AA0	
	2000	2000		3WL1220-2				3WL1220-3				3WL1220-4		
	2500	2500		3WL1225-2				3WL1225-3				3WL1225-4		
	3200	3200		3WL1232-2				3WL1232-3				3WL1232-4		
	4000	4000		3WL1240-2				3WL1240-3				3WL1240-4		
II	1600	1600	130	3WL1216-5										
	2000	2000		3WL1220-5	7-0AA0									
	2500	2500		3WL1225-5										
	3200	3200		3WL1232-5										
III	4000	4000	100	3WL1340-4										
	5000	5000		3WL1350-4	7-0AA0									
	6300	6300		3WL1363-4										

Option				Add. Price		Add. Price		Add. Price
Electronic Trip Unit	**ETU-versions without ground-fault**							
	ETU15B: protection function LI	BB						
	ETU25B: protection function LSI	CB						
	ETU45B: protection function LSIN	EB						
	ETU45B: protection function LSIN with 4-line display, LCD	FB						
	ETU-versions with ground-fault							
	ETU27B: protection function LSI	DG						
	ETU45B: protection function LSING	EG						
	ETU45B: protection function LSING with 4-line display, LCD	FG						
	Number of poles							
	3-pole version		3					
	4-pole version		4					

* For addtional option see Catalog Siemens LV 10
** For further information and price, please contact your local Siemens partner.
*** Neutral transformers for ground - fault protection are not included.
**** For 4 pole circuit breaker, the price is 1.4 times of 3-pole type.

Designation		Order No.	Basic price per PU (THB)
Internal accessories			
	5-digit operating cycles counter	3WL9111-0AH07-0AA0	
	Ready-to-close signaling switches**	3WL9111-0AH01-0AA0	
	Signaling switches	3WL9111-0AH02-0AA0	
	Tripped signaling switch**	3WL9111-0AH14-0AA0	
	Stored energy status signaling switches**	3WL9111-0AH08-0AA0	
	Position signaling switches for guide frames 6 CO	3WL9111-0AH12-0AA0	
	EMERGENCY-STOP pushbuttons	3WL9111-0BA72-0AA0	
	Interlocking set for mechanical ON/OFF Without safety lock	3WL9111-0BA21-0AA0	
	Locking devices against unauthorized closing, in the operator panels	3WL9111-0BA31-0AA0	
	Interlocking systems, 2 of the same keys for 3 circuit breakers. A maximum of 2 circuit breakers can be switched on	3WL9111-0BA43-0AA0	
Auxiliary release (Closing coils/shunt releases)			
	Shunt release, 24 VDC	3WL9111-0AD01-0AA0	
	Shunt release, 48 VDC	3WL9111-0AD03-0AA0	
	Shunt release, 110 ... 125 VDC/VAC	3WL9111-0AD05-0AA0	
	Shunt release, 220 ... 240 VDC/VAC	3WL9111-0AD06-0AA0	
	Undervoltage release, 24 VDC	3WL9111-0AE01-0AA0	
	Undervoltage release, 48 VDC	3WL9111-0AE03-0AA0	
	Undervoltage release, 110 … 125 VDC/VAC	3WL9111-0AE04-0AA0	
	Undervoltage release, 220 … 240 VDC/VAC	3WL9111-0AE05-0AA0	
	Undervoltage release, 380 … 415 VDC/VAC	3WL9111-0AE06-0AA0	
Motorized operating * **			
	24 ... 30 VDC	3WL9111-0AF01-0AA0	
	48 ... 60 VDC	3WL9111-0AF02-0AA0	
	110 ... 125 VDC/VAC	3WL9111-0AF03-0AA0	
	220 ... 240 VDC/VAC	3WL9111-0AF04-0AA0	
Auxiliary contacts			
3WL9111-0AG03-0AA0	2 NO + 2 NC	3WL9111-0AG01-0AA0	
	2 NO	3WL9111-0AG02-0AA0	
	1 NO + 1 NC	3WL9111-0AG03-0AA0	
For withdraw-able circuit breaker			
 3WL9111-0AP0.-0AA0	Position signaling switches for guide frames 6 CO		
	Shutters 3 Pole*** ACB Size		
	I	3WL9111-0AP04-0AA0	
	II	3WL9111-0AP06-0AA0	
	III	3WL9111-0AP07-0AA0	
Accessories for communications			
	PROFIBUS retrofit kits for ETU45B and ETU76B	3WL9111-0AT12-0AA0	
	MODBUS IEC retrofit kits	3WL9111-0AT18-0AA0	
	Measurement function Plus	3WL9111-0AT04-0AA0	

* X7 auxiliary supply connector required for circuit breakers or guide frames. If this is not already available, please order additionally

**X5 auxiliary supply connector required for circuit breakers or guide frames. If this is not already available, please order separately

***For addtional option see Catalog Siemens LV 10

**** For further information and price, please contact your local Siemens partner.

Fixed mounted version, vertical

Designation		Order No.	Basic price per PU (THB)
External accessories Mutual mechanical interlock			
Fixed-mounted circuit breakers with 2000 mm Bowden wire		3WL9111-0BB21-0AA0 + 3WL9112-8AH47-0AA0	
Module for withdraw-able circuit breakers with 2000 mm Bowden wire		3WL9111-0BB24-0AA0 + 3WL9112-8AH47-0AA0	
Manual tester Release 2 for Electronic Trip Units		3WL9111-0AT32-0AA0	
Door sealing frames		3WL9111-0AP01-0AA0	
Withdrawable short-circuiting, grounding and bridging units			
3 Pole*	ACB Size I	3WL9111-0BD01-0AA0	
	ACB Size II	3WL9111-0BD03-0AA0	
	ACB Size III	3WL9111-0BD05-0AA0	
Voltage transformers 380 ... 690 V/100 V, class 0.5		3WL9111-0BB68-0AA0	
Current transformers for neutral conductor overload protection and ground-fault protection	ACB Frame Size		
external neutral conductor without copper busbars	I	3WL9 111-0AA21-0AA0	
	II	3WL9 111-0AA22-0AA0	
	III	3WL9111-0AA23-0AA0	
Auxiliary conductor connections			
For ACB fix type, Screw connection (SIGUT)		3WL9111-0AB01-0AA0 + 3WL9111-0AB03-0AA0 + 3WL9111-0AB07-0AA0	
For ACB W/D type, Screw connection (SIGUT)		3WL9111-0AB01-0AA0 + 3WL9111-0AB18-0AA0	

* For addtional option see Catalog Siemens LV 10** For further information and price, please contact your local Siemens partner.

Switch Disconnectors

5

Switch Disconnectors
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3KD Switch Disconnectors
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3KL Switch Disconnectors
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3NP1 Fuse Switch Disconnectors
5/11 Introduction
5/13 3NP1 Fuse Switch Disconnectors up to 630A

For further technical product information:

Service & Support Portal
www.siemens.com/lowvoltage/product-support

→ Product List:
Technical specifications

→ Entry List:
Certificates / Characteristics / Download / FAQ / Manuals / Updates

Introduction

Overview

		Order No.
Switch disconnectors		
3LD	**Main control and EMERGENCY-STOP switches from 16 A to 250 A*,**** • Devices for front mounting, floor mounting with door-coupling rotary operating mechanism, distribution board mounting or in molded-plastic enclosures • Front mounting with four-hole and center hole arrangement • 3, 4 and 6-pole versions • 3 and 4-pole load transfer switches • Solar plant isolators 800 V DC	**3LD**
5TE1	**Switch disconnectors from 100 A to 200 A*,**** • For floor and distribution board mounting • 2, 3 and 4-pole versions	**5TE1**
3KD	**Switch disconnectors from 16A to 1600A** • 3-pole and 4-pole versions in 5 different sizes • Supplied as a complete assembly including direct operating mechanism or as a basic unit without handle • Additional poles can be retrofitted: 4th contact element, N or N/PE terminals • Auxiliary switch for querying the switch position • Suitable for AC or DC applications	**3KD**
3VT	**Switch disconnectors from 16A to 1600A*,**** • Compact design allowing it to be used where space is limited. • 3 and 4-pole versions • Coordinated, comprehensive range of accessories for greater functionality, e.g. - Motorized operating mechanisms - Shunt and undervoltage releases for remote control - Switching state interrogation by means of auxiliary and alarm switches	**3VT**
Switch disconnectors with fuses		
3KL	**Switch disconnectors with fuses up to 800 A*,**** • Devices for floor mounting with door-coupling rotary operating mechanism and for mounting in control cabinet side panels • 3KM versions with isolating plug connector for mounting on vertical busbars • 3 and 4-pole versions • Suitable for NH and BS 88 fuse systems	**3KL, 3KM**
3NJ62	**In-line switch disconnectors with fuses, plug-in type, up to 630 A*,**** • 2, 3 and 4-pole versions • Suitable for NH and BS 88 fuse systems • Manually operated or with motorized operating mechanism • Optionally with integrated current transformers, auxiliary switches and electronic fuse monitoring	**3NJ62**
Fuse switch disconnectors		
3NP1	**3NP fuse switch disconnectors*** • Rated current up to 630 A • Connection components are available for flat connection, saddle terminal connection, prism terminal connection and box terminal connection • Electromechanical and electronic fuse monitoring with/without network monitoring function • Mounting versions for floor mounting and 40/60 mm busbar system	**3NP1/3NP5**
3NJ4/3NJ5	**In-line fuse switch disconnectors up to 2000 A*** • 1- and 3-pole switchable versions • Versions for secondary-side protection of transformers • In-line infeed block versions up to 2000 A with isolating blades • Connection components are available for flat connection, stud bolt connection, saddle terminal connection, prism terminal connection and box terminal connection • Versions with/without integratable current transformer • Versions with/without electronic fuse monitoring	**3NJ4,3NJ5**

* For addtional option see Catalog Siemens LV 10

** For further information and price, please contact your local Siemens partner.

Overview

3LD main control and EMERGENCY-STOP switches																
3KD switch disconnectors: Box terminals																
3KD switch disconnectors: Flat terminals																
Size		[2]	[2]	[2]	[2]	**1**			[2]	[2]	[2]	**2**				
Type		**3LD2 0**	**3LD2 1**	**3LD2 2**	**3LD2 5**	**3KD ... - .M**			**3LD2 7**	**3LD2 8**	**3LD2 3**	**3KD ... - .N**				
		3LD main control and EMERGENCY-STOP switches				3KD switch disconnectors			3LD main control and EMERGENCY-STOP switches			3KD switch disconnectors				
Rated current I_n	A	16	25	32	63	16	32	63	100	125	160	80	100	125	160	200
Number of poles																
• 3		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
• 4		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Connections																
• Flat terminals		-	-	-	-	-	-	-	-	-	-	✓	✓	✓	✓	✓
• Box terminals		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-
Operating mechanism																
• Front operating mechanism		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
• Side operating mechanisms		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Operating and short-circuit behavior																
• Rated short-time withstand current I_{cw} (1 s current, rms value)	kA	0.34	0.64	0.64	1.26	3	3	3	2	2	4	4	4	4	4	4
• Rated conditional short-circuit current with upstream fuses at 690 V	kA_{rms}	50	50	50	50	100	100	100	50	20	50	65	65	65	65	50

[1] Valid for the combination of 3KD switch disconnector and fuse type 3NA…, characteristic gG

[2] For addition option see catalog Siemens LV10

✓ Available

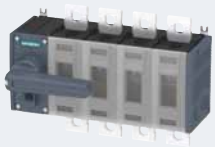
-- Not available

For further information about 3LD main control and EMERGENCY-STOP switches, see

- Catalog LV 10
- Industry Mall, section "Building Technologies"
  --> "Low-Voltage Controls and Distribution"
  --> "SENTRON protection, switching, measuring and monitoring devices"
  --> "Switching devices"
  --> "Switch disconnectors"
  --> "3LD main and EMERGENCY-STOP switches up to 250 A"

Technical features

Overview (continued)

3LD main control and EMERGENCY-STOP switches												
3KD switch disconnectors: Box terminals												
3KD switch disconnectors: Flat terminals												
Size		[2]	**3**				**4**			**5**		
Type		**3LD24**	**3KD...-.P**				**3KD...-.Q**			**3KD...-.R**		
		3LD main control and EMERGENCY-STOP switches	**3KD switch disconnectors**									
Rated current I_n	A	250	200	250	315	400	500	630	800	1000	1250	1600
Number of poles												
• 3		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
• 4		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Connections												
• Flat terminals		-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
• Box terminals		✓	-	-	-	-	-	-	-	-	-	-
Operating mechanism												
• Front operating mechanism		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
• Side operating mechanisms		-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Operating and short-circuit behavior												
• Rated short-time withstand current I_{cw} (1 s current, rms value)	kA	4	13	13	13	13	30	30	30	50	50	50
• Rated conditional short-circuit current with upstream fuses at 690 V [1]	kA_{rms}	50	65	65	35	35	65	65	50	-	-	-

[1] Valid for the combination of 3KD switch disconnector and fuse type 3NA…, characteristic gG

[2] For addition option see catalog Siemens LV10

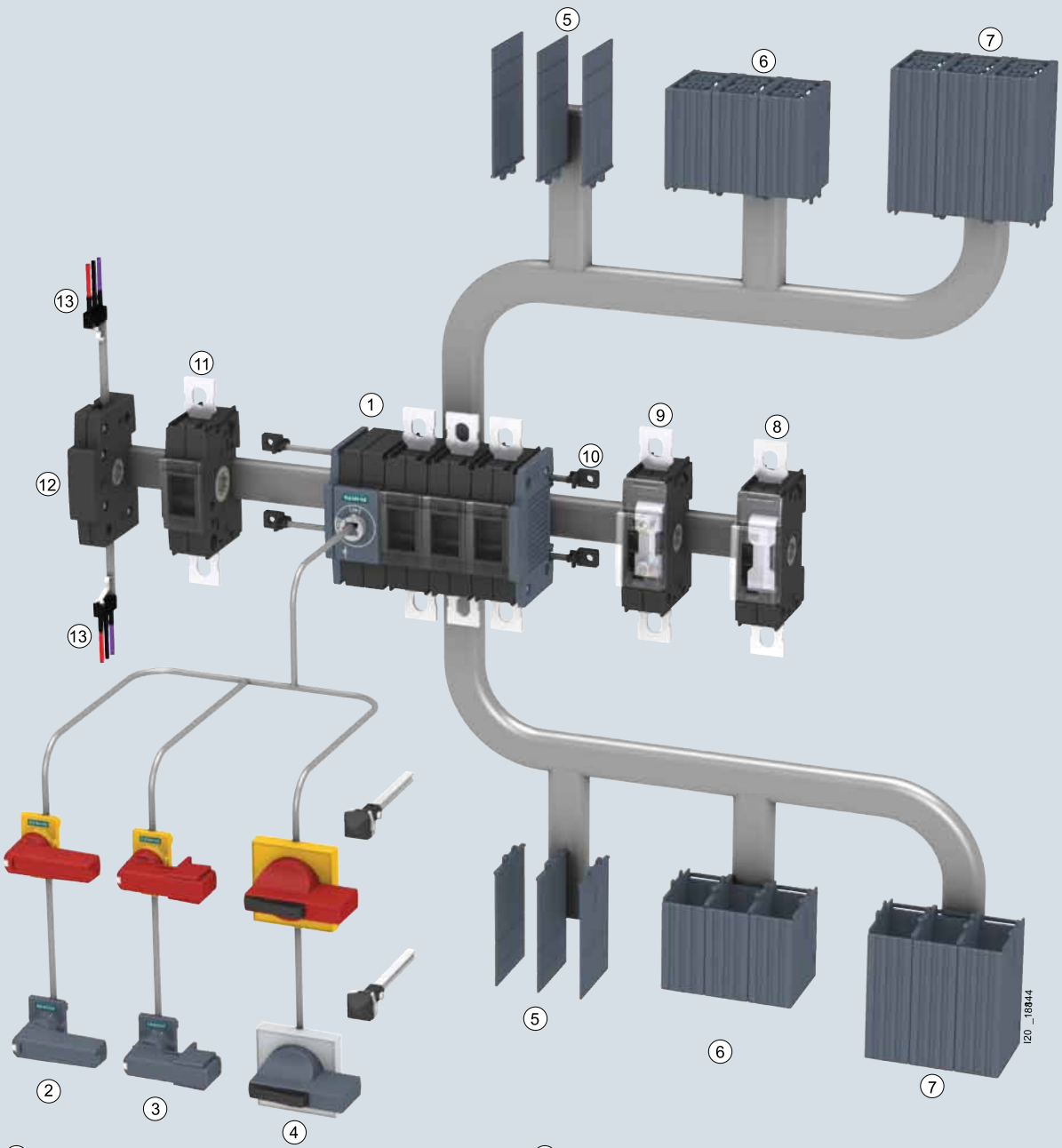
✓ Available

-- Not available

For further information about 3LD main control and EMERGENCY-STOP switches, see

- Catalog LV 10
- Industry Mall, section "Building Technologies"
  --> "Low-Voltage Controls and Distribution"
  --> "SENTRON protection, switching, measuring and monitoring devices"
  --> "Switching devices"
  --> "Switch disconnectors"
  --> "3LD main and EMERGENCY-STOP switches up to 250 A"

Overview of components and accessories: Sizes 1 and 2 of 3KD switch disconnectors



1 3KD switch disconnectors
2 Direct operating mechanism (standard version)
3 Direct operating mechanism (suitable for distribution boards)
4 Door-coupling rotary operating mechanism
5 Phase barriers
6 Cable connection cover, short
7 Cable connection covers
8 N/PE terminal (with permanent jumper)
9 Neutral conductor terminal (with removable jumper)
10 Mounting bracket (spare part)
11 4th contact element
12 Auxiliary switch module
13 Auxiliary switch

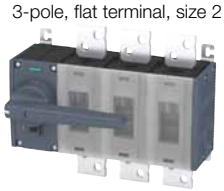
Complete assemblies

Selection and ordering data

Complete assemblies with direct operating mechanism gray, front operating mechanism

The switch disconnectors are designed for floor mounting; sizes 1 and 2 can optionally be mounted on standard mounting rails

3-pole, flat terminal, size 2


3-pole, flat terminal, size 5

3-pole, box terminal, size 2

4-pole, flat terminal, size 2

4-pole, flat terminal, size 5

4-pole, box terminal, size 2

Rated uninterrupted current I_u	Size	PU (UNIT, SET, M)	PS*/ P.unit	PG	Weight per PU approx.	Order No.	Basic Price per PU (THB)
A					kg		
3-pole							
Flat terminal [1]							
80	2	1	1 unit	143	0.850	**3KD2832-0NE10-0**	
100		1	1 unit	143	0.850	**3KD3032-0NE10-0**	
125		1	1 unit	143	0.850	**3KD3232-0NE10-0**	
160		1	1 unit	143	0.850	**3KD3432-0NE10-0**	
200		1	1 unit	143	0.850	**3KD3632-0NE10-0**	
200	3	1	1 unit	143	2.850	**3KD3632-0PE10-0**	
250		1	1 unit	143	2.850	**3KD3832-0PE10-0**	
315		1	1 unit	143	2.850	**3KD4032-0PE10-0**	
400		1	1 unit	143	2.850	**3KD4232-0PE10-0**	
500	4	1	1 unit	143	7.700	**3KD4432-0QE10-0**	
630		1	1 unit	143	7.700	**3KD4632-0QE10-0**	
800		1	1 unit	143	7.700	**3KD4832-0QE10-0**	
1000	5	1	1 unit	143	16.700	**3KD5032-0RE10-0**	
1250		1	1 unit	143	16.700	**3KD5232-0RE10-0**	
1600		1	1 unit	143	16.700	**3KD5432-0RE10-0**	
Box terminal							
16	1	1	1 unit	143	0.750	**3KD1632-2ME10-0**	
32		1	1 unit	143	0.750	**3KD2232-2ME10-0**	
63		1	1 unit	143	0.750	**3KD2632-2ME10-0**	
80	2	1	1 unit	143	0.850	**3KD2832-2NE10-0**	
100		1	1 unit	143	0.850	**3KD3032-2NE10-0**	
125		1	1 unit	143	0.850	**3KD3232-2NE10-0**	
160		1	1 unit	143	0.850	**3KD3432-2NE10-0**	
4-pole							
Flat terminal [1]							
80	2	1	1 unit	143	1.050	**3KD2842-0NE10-0**	
100		1	1 unit	143	1.050	**3KD3042-0NE10-0**	
125		1	1 unit	143	1.050	**3KD3242-0NE10-0**	
160		1	1 unit	143	1.050	**3KD3442-0NE10-0**	
200		1	1 unit	143	1.050	**3KD3642-0NE10-0**	
200	3	1	1 unit	143	3.700	**3KD3642-0PE10-0**	
250		1	1 unit	143	3.700	**3KD3842-0PE10-0**	
315		1	1 unit	143	3.700	**3KD4042-0PE10-0**	
400		1	1 unit	143	3.700	**3KD4242-0PE10-0**	
500	4	1	1 unit	143	9.400	**3KD4442-0QE10-0**	
630		1	1 unit	143	9.400	**3KD4642-0QE10-0**	
800		1	1 unit	143	9.400	**3KD4842-0QE10-0**	
1000	5	1	1 unit	143	20.700	**3KD5042-0RE10-0**	
1250		1	1 unit	143	20.700	**3KD5242-0RE10-0**	
1600		1	1 unit	143	20.700	**3KD5442-0RE10-0**	
Box terminal							
16	1	1	1 unit	143	0.800	**3KD1642-2ME10-0**	
32		1	1 unit	143	0.800	**3KD2242-2ME10-0**	
63		1	1 unit	143	0.800	**3KD2642-2ME10-0**	
80	2	1	1 unit	143	1.250	**3KD2842-2NE10-0**	
100		1	1 unit	143	1.250	**3KD3042-2NE10-0**	
125		1	1 unit	143	1.250	**3KD3242-2NE10-0**	
160		1	1 unit	143	1.250	**3KD3442-2NE10-0**	

[1] Cable connection covers must be provided for switch disconnectors with flat terminals and direct operating mechanisms
** For further information and price, please contact your local Siemens partner.

Selection and ordering data

Additional poles

	Type	Circuit symbol	PU (UNIT, SET, M)	PS*/ P.unit	PG	Weight per PU approx.	Order No.	Basic Price per PU (THB)
		mm				kg		
4thcontact element, flat terminal, for size 2	***4thcontact element (switching pole)***	N N						
	Flat terminal							
	for size 2; 3KD....-.N	--	1	1 unit	143	0.260	**3KD9205-0**	
	for size 3; 3KD....-.P		1	1 unit	143	0.556	**3KD9305-0**	
	for size 4; 3KD....-.Q		1	1 unit	143	1.433	**3KD9405-0**	
	for size 5; 3KD....-.R		1	1 unit	143	3.567	**3KD9505-0**	
4thcontact element, box terminal, for size 2	**Box terminal**							
	for size 1; 3KD....-.M		1	1 unit	143	0.180	**3KD9105-2**	
	for size 2; 3KD....-.N		1	1 unit	143	0.300	**3KD9205-2**	
Neutral conductor terminal, flat terminal, for size 2	***Neutral conductor terminal with removable jumper***							
	Flat terminal							
	for size 2; 3KD....-.N		1	1 unit	143	0.151	**3KD9206-0**	
	for size 3; 3KD....-.P		1	1 unit	143	0.435	**3KD9306-0**	
	for size 4; 3KD....-.Q		1	1 unit	143	1.177	**3KD9406-0**	
	for size 5; 3KD....-.R		1	1 unit	143	2.936	**3KD9506-0**	
Neutral conductor terminal, box terminal, for size 2	**Box terminal**							
	for size 1; 3KD....-.M		1	1 unit	143	0.167	**3KD9106-2**	
	for size 2; 3KD....-.N		1	1 unit	143	0.279	**3KD9206-2**	
N/PE terminal, flat terminal, for size 2	***N/PE terminal with permanent jumper***							
	Flat terminal							
	for size 2; 3KD....-.N		1	1 unit	143	0.129	**3KD9206-7**	
	for size 3; 3KD....-.P		1	1 unit	143	0.396	**3KD9306-7**	
	for size 4; 3KD....-.Q		1	1 unit	143	1.057	**3KD9406-7**	
	for size 5; 3KD....-.R		1	1 unit	143	2.656	**3KD9506-7**	
N/PE terminal, box terminal, for size 2	**Box terminal**							
	for size 1; 3KD....-.M		1	1 unit	143	0.167	**3KD9106-8**	
	for size 2; 3KD....-.N		1	1 unit	143	0.279	**3KD9206-3**	

** For further information and price, please contact your local Siemens partner.

Acessories and spare parts

Auxiliary switches

	Type	PU (UNIT, SET, M)	PS*/ P.unit	PG	Weight per PU approx. kg	Order No.	Basic Price per PU (THB)
Auxiliary switch module, standard version	**Auxiliary switch modules for sizes 1 and 2** [1]						
	Standard version1600	1	1 unit	143	0.071	**3KD9103-5**	
	Version with test function	1	1 unit	143	0.077	**3KD9103-6**	
	Version with leading NO contacts + test function	1	1 unit	143	0.077	**3KD9103-7**	
Auxiliary switch 1 CO contact, solid-state compatible	**Auxiliary switch for sizes 1 and 2** [2]						
	1 CO	1	1 unit	143	0.024	**3KD9103-1**	
	1 CO contact, solid-state compatible	1	1 unit	143	0.024	**3KD9103-3**	
Auxiliary switch 3SB3400-0B	**for sizes 3 to 5** [3]						
	1 NO	1	1 unit	41J	0.011	**3SB3400-0B**	
	1 NO with gold-plated contacts	1	1 unit	41J	0.011	**3SB3400-0BA**	
	1 NC	1	1 unit	41J	0.010	**3SB3400-0C**	
	1 NO with gold-plated contacts	1	1 unit	41J	0.011	**3SB3400-0CA**	
	1 NO + 1 NC	1	1 unit	41J	0.016	**3SB3400-0A**	
	1 NO + 1 NC with gold-plated contacts	1	1 unit	41J	0.016	**3SB3400-0AA**	
	2 NO	1	1 unit	41J	0.017	**3SB3400-0D**	
	2 NO with gold-plated contacts	1	1 unit	41J	0.017	**3SB3400-0DA**	
Auxiliary switch 3SB3400-0A	2 NC	1	1 unit	41J	0.017	**3SB3400-0E**	
	2 NC with gold-plated contacts	1	1 unit	41J	0.017	**3SB3400-0EA**	

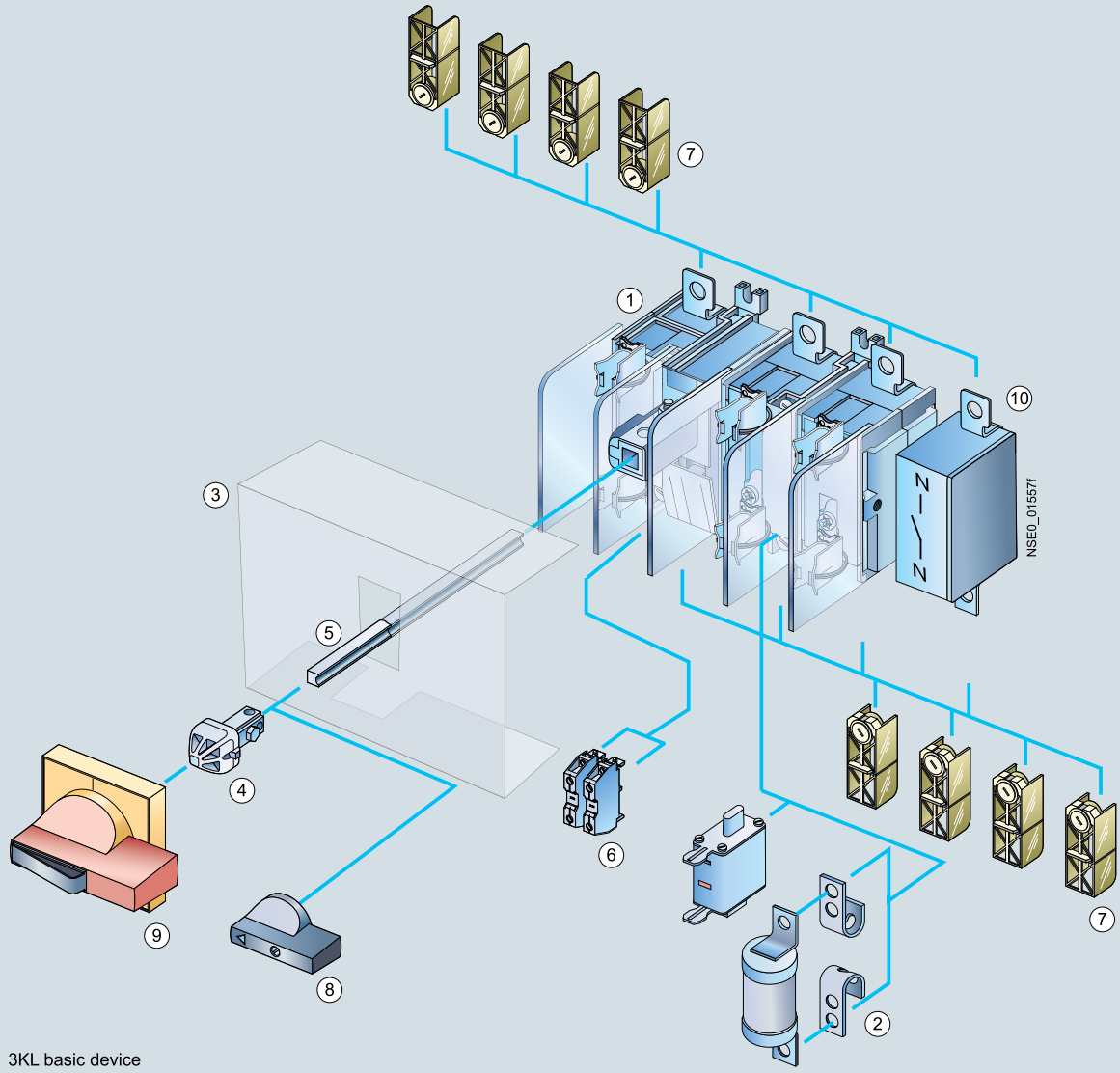
[1] Unit is supplied without auxiliary switches, a maximum of 2 auxiliary switches can be installed

[2] Unit is shipped with soldered-on 50 cm connecting cables

[3] Auxiliary switch with screw-type terminal for installation on operating mechanism module. Auxiliary switches with spring-type terminal 3SB3403-.. from the 3SB3 program can also be used

** For further information and price, please contact your local Siemens partner.

Overview



1. 3KL basic device
2. Fuses, optionally BS 88 or LV HRC fuses
3. Terminal cover, IP20 (vertical to operator side)
4. Coupling driver
5. Extension shaft
6. Standard products from the Siemens 3SB1 range are used as auxiliary switches.

All components from the switch to the actuator are provided with non-interchangeability features.

Optional

7. Single-pole terminal cover from 63 A to 630 A, IP20 (vertical to operator side)
8. 8UC9 knob for fixed mounting in standard version (black) or EMERGENCY-STOP version (red), or
9. 8UC7 door-coupling rotary operating mechanism in standard version (ti-grey) or EMERGENCY-STOP version (red/yellow)
10. 4th pole (optional)

All switch disconnectors feature double contact interruption and an isolating distance. As a result, the fuses of the switch disconnectors are de-energized in the OFF position.
Generally all 3K.5 switch disconnectors can be secured to the shaft with padlock against unauthorized reclosing.

Identical accessories for 3KA switch disconnectors and 3KL and 3KM switch disconnectors with fuses simplify stock keeping.
Please inquire about a special version with reduced values that is particularly resistant to atmospheres high in sulfur, e.g. in the paper and cellulose processing industries.

Application

3KL switch disconnectors with fuses protect against overload and short-circuits as main control and EMERGENCY-STOP switches of switchgear assemblies, distribution boards, power supply and motor outgoing feeders.
In conjunction with Siemens SITOR semiconductor fuses, they are also used in UPS systems, frequency converters and capacitor control systems.

All 3K switch disconnectors are climate-proof and meet the requirements of IEC 60947-1, IEC 60947-3 and VDE 0660 Part 107.

Floor mounting

Selection and ordering data

All switch disconnectors with degree of protection IP00
Conductor connecting screws and fuse partitions are generally included in the scope of supply.

Rated uninterrupted current I_u	LV HRC fuse links [1] acc. to DIN 43620 [2]			PU (UNIT, SET, M)	PS*/ P.unit	PG	Weight per PU approx.	Order No.	Basic Price per PU (THB)
	Size	Operational class							
A							kg		
Complete versions with 8UC7 door-coupling rotary operating mechanism (black handle)									
3-pole for NH fuse systems									
63	00 and 000	gG, aM		1	1 unit	103	1.469	**3KL5030-1GB01**	
125	00 and 000	gG, aM		1	1 unit	103	2.369	**3KL5230-1GB01**	
160	00 and 000	gG, aM		1	1 unit	103	2.500	**3KL5330-1GB01**	
250	1 and 2	gG, aM		1	1 unit	103	6.043	**3KL5530-1GB01**	
400	2 and 1	gG, aM		1	1 unit	103	6.248	**3KL5730-1GB01**	
630	3 and 2	gG, aM		1	1 unit	113	18.680	**3KL6130-1GB00**	
630 [3]	3 and 2 [3]	gG, aM [3]		1	1 unit	113	16.207	**3KL6130-1GB02**	
800 [3]	3 and 2 [3]	gG, aM [3]		1	1 unit	113	17.271	**3KL6230-1GB02**	
4-pole for NH fuse systems									
63	00 and 000	gG, aM		1	1 unit	103	2.578	**3KL5040-1GB01**	
125	00 and 000	gG, aM		1	1 unit	103	2.592	**3KL5240-1GB01**	
160	00 and 000	gG, aM		1	1 unit	103	2.733	**3KL5340-1GB01**	
250	1 and 2	gG, aM		1	1 unit	103	6.618	**3KL5540-1GB01**	
400	2 and 1	gG, aM		1	1 unit	103	6.836	**3KL5740-1GB01**	
630	3 and 2	gG, aM		1	1 unit	113	17.340	**3KL6140-1GB00**	
3-pole for fuse acc. to BS 88									
63	Form A2/A3			1	1 unit	103	1.391	**3KL5030-1GG01**	
125	Form A2/A3			1	1 unit	103	2.325	**3KL5230-1GG01**	
125	Form A4			1	1 unit	103	2.351	**3KL5230-1GJ01**	
160	Form A4			1	1 unit	103	2.522	**3KL5330-1GJ01**	
250	Form B1 - B3			1	1 unit	103	4.500	**3KL5530-1GG01**	
400	Form B1 - B3			1	1 unit	103	6.538	**3KL5730-1GG01**	
630	Form C1 - C3			1	1 unit	113	17.880	**3KL6130-1GG00**	
800	Form C1 - C3			1	1 unit	113	16.576	**3KL6230-1GG00**	
4-pole for fuse acc. to BS 88									
63	Form A2/A3			1	1 unit	103	2.529	**3KL5040-1GG01**	
125	Form A2/A3			1	1 unit	103	2.522	**3KL5240-1GG01**	
125	Form A4			1	1 unit	103	2.603	**3KL5240-1GJ01**	
160	Form A4			1	1 unit	103	2.749	**3KL5340-1GJ01**	
250	Form B1 - B3			1	1 unit	103	6.616	**3KL5540-1GG01**	
400	Form B1 - B3			1	1 unit	103	7.090	**3KL5740-1GG01**	
630	Form C1 - C3			1	1 unit	113	16.996	**3KL6140-1GG00**	
Basic switch versions without handle									
3-pole for NH fuse systems									
63	00 and 000	gG, aM	▸	1	1 unit	103	1.014	**3KL5030-1AB01**	
125	00 and 000	gG, aM	▸	1	1 unit	103	1.965	**3KL5230-1AB01**	
160	00 and 000	gG, aM	▸	1	1 unit	103	2.140	**3KL5330-1AB01**	
250	1 and 2	gG, aM	▸	1	1 unit	103	5.344	**3KL5530-1AB01**	
400	2 and 1	gG, aM	▸	1	1 unit	103	5.390	**3KL5730-1AB01**	
630	3 and 2	gG, aM		1	1 unit	113	17.640	**3KL6130-1AB0**	
630 [3]	3 and 2 [3]	gG, aM [3]		1	1 unit	113	14.720	**3KL6130-1AB02**	
800 [3]	3 and 2 [3]	gG, aM [3]		1	1 unit	113	16.120	**3KL6230-1AB02**	
4-pole for NH fuse systems									
63	00 and 000	gG, aM		1	1 unit	103	2.169	**3KL5040-1AB01**	
125	00 and 000	gG, aM		1	1 unit	103	2.125	**3KL5240-1AB01**	
160	00 and 000	gG, aM		1	1 unit	103	2.344	**3KL5340-1AB01**	
250	1 and 2	gG, aM		1	1 unit	103	5.577	**3KL5540-1AB01**	
400	2 and 1	gG, aM		1	1 unit	103	5.880	**3KL5740-1AB01**	
630	3 and 2	gG, aM		1	1 unit	113	16.520	**3KL6140-1AB00**	
3-pole for fuses acc. to BS 88									
63	Form A2/A3			1	1 unit	103	0.975	**3KL5030-1AG01**	
125	Form A2/A3			1	1 unit	103	1.939	**3KL5230-1AG01**	
125	Form A4			1	1 unit	103	1.975	**3KL5230-1AJ01**	
160	Form A4			1	1 unit	103	2.170	**3KL5330-1AJ01**	
250	Form B1 - B3			1	1 unit	103	5.051	**3KL5530-1AG01**	
400	Form B1 - B3			1	1 unit	103	5.666	**3KL5730-1AG01**	
630	Form C1 - C3			1	1 unit	113	15.075	**3KL6130-1AG00**	
800	Form C1 - C3			1	1 unit	113	10.100	**3KL6230-1AG00**	

3KL5230-1AB01

3KL5240-1AB01

3KL5230-1AJ01

Fuse monitoring through 5TT3170 safety monitor with a floating 1 NO signaling contact, see Catalog Siemens LV10

* For addtional option see Catalog Siemens LV 10

** For further information and price, please contact your local Siemens partner.

[1] Silver-plated fuse blades. Silver-plated isolating blades can be used if desired

[2] For the assignment of semiconductor fuses see Catalog Siemens LV10

[3] With SITOR 3NE fuse links cULus-approved

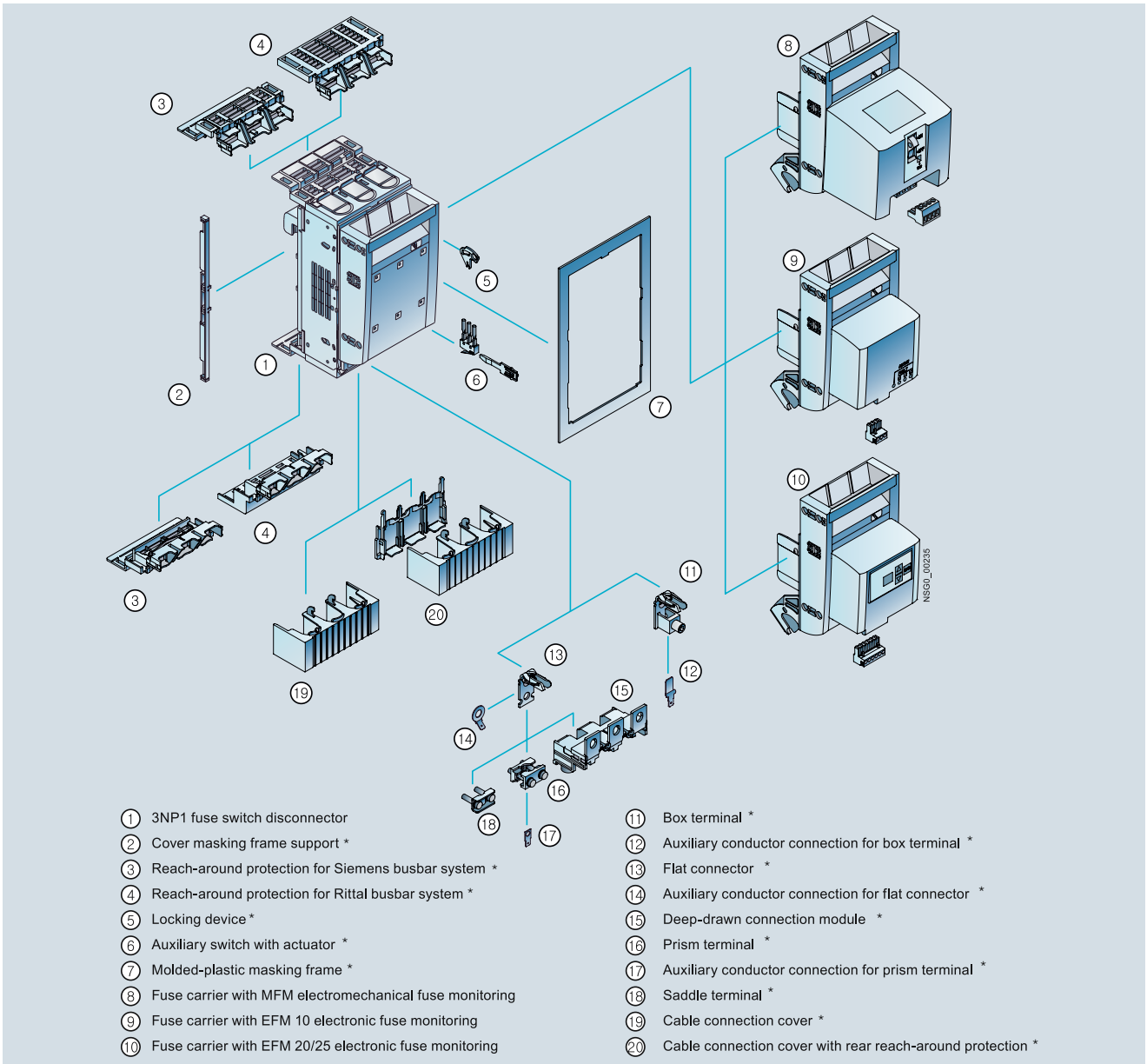
Overview

3NP1 fuse switch disconnectors

All key product features at a glance

- Box terminals available for all sizes
- Connection of circular conductors and laminated conductors
- Fuse monitoring possible throughout
- Busbar supports can be built over
- Conversion of 5/10 mm thick busbars without parts which can be lost or broken off
- Convertibility of cable feeder at top/bottom without intervention in the internal conducting paths
- Optimum integration in various system environments through cover levels and on busbar systems with/without base
- Touch protection also with rear incoming feeder
- Fuses are removed using a release shaft without the fuses being touched
- All units can be sealed and locked

Overview of all components and accessory parts



1. 3NP1 fuse switch disconnector
2. Cover masking frame support *
3. Reach-around protection for Siemens busbar system *
4. Reach-around protection for Rittal busbar system *
5. Locking device *
6. Auxiliary switch with actuator *
7. Molded-plastic masking frame *
8. Fuse carrier with MFM electromechanical fuse monitoring
9. Fuse carrier with EFM 10 electronic fuse monitoring
10. Fuse carrier with EFM 20/25 electronic fuse monitoring
11. Box terminal *
12. Auxiliary conductor connection for box terminal *
13. Flat connector *
14. Auxiliary conductor connection for flat connector *
15. Deep-drawn connection module *
16. Prism terminal *
17. Auxiliary conductor connection for prism terminal *
18. Saddle terminal *
19. Cable connection cover *
20. Cable connection cover with rear reach-around protection *

*For other option, please contact your local Siemens partner

Introduction

Benefits

Advantages during planning and configuration

- Low level of equipment variation due to easy convertibility of cable feeder at top/bottom (delivered from factory with cable feeder at bottom).
- Only one device variant for applications in industry and infrastructure thanks to touch and reach-around protection as a standard feature.
- Uniform grid sizes for easy configuration.

Advantages during operation and service

- The optional rear covers for the cable connections ensure optimum touch protection even for switchgear assemblies with rear access.
- Innovative design enables the highest safety for equipment and personnel.
- Fuses can be released and removed using a release shaft.
- Lockable and sealable design enables safe working and prevents unauthorized access.

Advantages during installation

- Only one device version is required for cable feeders at top/bottom and there is no need to intervene in the internal conducting paths
- One device version with very high short-circuit values dispenses with having to order and install arc splitters to increase the electrical values.
- On all sizes it is possible to install 2CO contacts for indicating the switching position.
- All devices feature all-round touch protection.
- Box terminals are available for all sizes and shorten the mounting time appreciably
- Snapping on the sizes NH000 and NH00 shortens the mounting time greatly compared to fixing with screws.
- The screw-fixing method on sizes NH1, NH2 and NH3 provides for easy positioning and at the same time secure contacting of the larger and heavier device versions.
- Small space requirement through compact devices and busbar supports which can be built over.
- Device versions for busbar mounting can be converted to 5 mm or 10 mm thick busbars without parts which can be lost or broken off.

Benefits

Possible uses

3NP1 fuse switch disconnectors can be used for protecting and switching the most diverse electrical loads:

- Motor starter combinations
- In conjunction with SITOR semiconductor fuses for the protection of frequency converters and soft starters
- Fusing of compensation modules
- Cable feeders
- Group fusing of small loads

The devices are optimized for operation in all kinds of system environments:

- Low-voltage switchgear assemblies for power distribution and MCCs (e.g. main and sub-distribution boards)
- Distribution systems with cover levels of 32 and 70 mm or 45 and 70 mm
- Mechanical engineering
- Railway applications

Fuse monitoring

Fuse monitoring is used to detect, indicate and report faults:

- MFM - electromechanical fuse monitoring for AC/DC networks
- EFM 10 - electronic fuse monitoring for AC networks
- EFM 20 - electronic fuse monitoring with line monitoring for AC networks
- EFM 25 - electronic fuse monitoring with line monitoring for DC networks

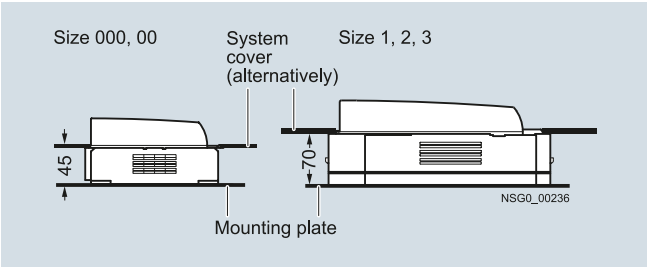
Standards and specifications

the 3NP1 fuse switch disconnectors are compliant with:

- IEC 60947-1, EN 60947-1
- IEC 60947-3, EN 60947-3

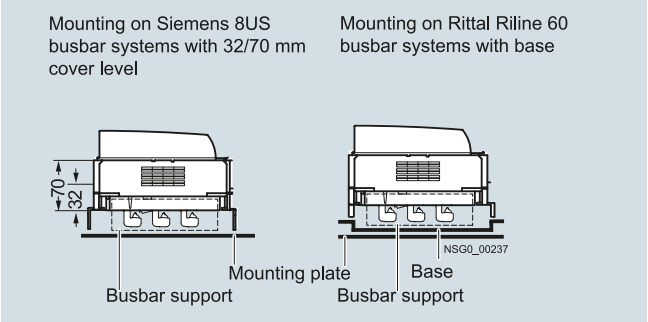
Mounting

Floor mounting



3NP1 fuse switch disconnector for floor mounting

Busbar mounting



3NP1 fuse switch disconnector for busbar mounting

	Rated uninterrupted current I_u	Size	PU (UNIT, SET, M)	PS*/ P.unit	PG	Weight per PU approx	Order No.	Price per PU
	A					kg		
For 70 mm cover level								
	Basic units **Flat terminals**							
3NP1143-1DA20	250	1	1	1 unit	143	2.789	3NP1143-1DA10	
	400	2	1	1 unit	143	3.675	3NP1153-1DA10	
	630	3	1	1 unit	143	4.639	3NP1163-1DA10	
	box terminals							
	250	1	1	1 unit	143	2.950	3NP1143-1DA20	
	400	2	1	1 unit	143	5.000	3NP1153-1DA20	
	630	3	1	1 unit	143	5.220	3NP1163-1DA20	
	With MFM electromechanical fuse monitoring **Flat terminals**							
3NP1143-1DA21	250	1	1	1 unit	143	3.590	3NP1143-1DA11	
	400	2	1	1 unit	143	6.500	3NP1153-1DA11	
	630	3	1	1 unit	143	5.300	3NP1163-1DA11	
	box terminals							
	250	1	1	1 unit	143	3.630	3NP1143-1DA21	
	400	2	1	1 unit	143	5.115	3NP1153-1DA21	
	630	3	1	1 unit	143	5.908	3NP1163-1DA21	
	With EFM 10 electronic fuse monitoring **Flat terminals**							
3NP1143-1DA22	250	1	1	1 unit	143	3.141	3NP1143-1DA12	
	400	2	1	1 unit	143	4.122	3NP1153-1DA12	
	630	3	1	1 unit	143	4.950	3NP1163-1DA12	
	box terminals							
	250	1	1	1 unit	143	3.270	3NP1143-1DA22	
	400	2	1	1 unit	143	4.762	3NP1153-1DA22	
	630	3	1	1 unit	143	5.540	3NP1163-1DA22	
	With EFM 20 electronic fuse monitoring and line monitoring **Flat terminals**							
3NP1143-1DA23	250	1	1	1 unit	143	3.151	3NP1143-1DA13	
	400	2	1	1 unit	143	4.104	3NP1153-1DA13	
	630	3	1	1 unit	143	4.972	3NP1163-1DA13	
	box terminals							
	250	1	1	1 unit	143	3.307	3NP1143-1DA23	
	400	2	1	1 unit	143	4.792	3NP1153-1DA23	
	630	3	1	1 unit	143	5.594	3NP1163-1DA23	

* For addtional option see Catalog Siemens LV 10
**For Rital Busbar connection 40mm or 60mm option and price, please contact your local Siemens partner.

Notes

Siemens LV, version Thailand, May 2014

Measuring Devices and Power Monitoring

6

Power monitoring

6/2 PC-based power monitoring system

6/3 Hardware and software components

Measuring device

6/4 7KM PAC3100 measuring device

7KM PAC3200 measuring device

6/5 7KM PAC4200 measuring device

Transfer switches

6/6 3KC ATC5300 transfer control device

For further technical product information:

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→ Product List:
Technical specifications

→ Entry List:
Certificates / Characteristics / Download / FAQ / Manuals / Updates

PC-based power monitoring system

Overview

Components of the PC-based power monitoring system

Power monitoring system with the SENTRON product family

The SENTRON product family offers the user not only power monitoring software in the form of the powermanager, but also the corresponding hardware in the form of 7KM PAC measuring devices and 3WL/3VL circuit breakers for implementing a complete power monitoring system.

The components are optimally coordinated with each other.
For example, special drivers for the SENTRON devices are integrated in the power monitoring software so that on the one hand, power data acquisition can take place without any great config-uration effort and, on the other, the most important measured values or states are indicated by predefined displays.

This reduces the engineering work for the customer and gives the user the assurance of knowing that the device functions are optimally supported in the software.

User interface of powermanager

Features of powermanager

The powermanager power monitoring software is the central feature of the PC-based power monitoring system and

- is an independent power monitoring software.
- can be operated using a PC and measuring devices with Ethernet connection.
- is expandable from the simple standard application to a fully flexible customer solution.
- is fully scalable with regard to the number of devices and the software's functions.
- ensures optimum integration of measuring devices from the 7KM PAC range, as well as 3WL/3VL circuit breakers and other Modbus devices.

Benefits

- Transparency of power flows
- Exact knowledge of the consumption profile
- Increased power efficiency
- Optimization of power supply contracts
- Compliance with contractual terms
- Allocation of power costs to cost centers
- Optimization of plant maintenance
- Identification of critical plant conditions
- Available languages:
  German, English, Spanish, Portuguese
- Support of the various device communication interfaces
  (Modbus RTU, Modbus TCP)
- Status display of devices

Application

Applications

The product offers a standard power monitoring solution which provides the user with the following basic functions:

- Collection of measured quantities from the devices
- Presentation of the measured quantities from the devices in a predefined standard view for the 7KMPAC3100, 7KM PAC3200, 7KM PAC4200 measuring devices and 3WL/3VL circuit breakers
- Free presentation of measured quantities possible, including those from non-Siemens devices using generic Modbus drivers
- Archiving of measured quantities
- Monitoring of status and limits, with generation of corresponding signals
- Load curve display for visualizing the archived data and online data
- Cost center reports based on predefined tariffs and the archived consumption data
- OPC server
- Configuration of the system including user management
- Load monitoring for complying with power limits
- Virtual computation

This standard solution is designed with cost-efficiency and simple system commissioning in mind.

Overview

7KT/7KM PAC measuring devices

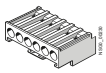
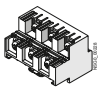
	7KM PAC3100	7KM PAC3200	7KM PAC4200
	The cost-effective solution for digital measurement	The specialist solution for precise energy measurement	The professional solution for communication and monitoring
Measuring range/connection			
• Max. input voltage L-L/L-N	480 V/276 V	690 V/400 V [1]	690 V/400 V [1]
• Transformer connection version	x/5A	x/1A/x/5A	x/1A/x/5A
• Direct connection version	-	-	-
• DC power supply unit with extra-low voltage version	-	22 ... 65 V	22 ... 65 V
• Single-phase counter version	-	-	-
Basic measured quantities			
• Voltage, current, power, frequency, power factor	✓	✓	✓
Energy measurement			
• Apparent, active, reactive energy	- I ✓ I ✓	✓ I ✓ I ✓	✓ I ✓ I ✓
Extended measured quantities			
• Load profile record with time stamp and min/max values	-	-	✓
• Distortion factor THD (voltage, current)	-	✓	✓
• Harmonics (voltage, current)	-	-	3. - 31.
• Phase angle/phase chart	-	-	✓
Monitoring functions			
• Operating hours counter	-	✓	✓
• Limit monitoring	-	✓	✓
• Logic functions	-	✓	✓
• Event log	-	-	> 4000 events
• Gateway function	-	-	✓
System integration and communication			
• Digital inputs (DI)/digital outputs (DO)	2/2	1/1	2/2
• S0 interface	✓	✓	✓
• 4DI/2DO expansion module	-	-	Optional
• M-Bus	-	-	-
• Instabus KNX	-	-	-
• Modbus RTU	✓	Optional	Optional
• Ethernet with Modbus TCP	-	✓	✓
• PROFIBUS DPV1	-	Optional	Optional
• PROFINET IO/ PROFIenergy	-	Optional	Optional
• Parameterization software	powerconfig	powerconfig	powerconfig
• Integration in power monitoring system	powermanager	powermanager	powermanager
General data			
• Measuring accuracy, active energy, reactive energy	1 I 3	0.5 S I 2	0.2 S I 2
• MID version	-	-	-
• Installation	Front mounting	Front mounting	Front mounting
• Dimensions (1 MW = 18 mm)	96 x 96 x 56 mm	96 x 96 x 56 mm	96 x 96 x 82 mm

[1] With the exception of devices with power supply units with extra-low voltage

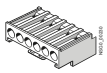
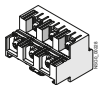
✓ Available/possible
-- Not available/not possible

7KM PAC measuring devices

Selection and ordering data

Picture	Overview	Version	Order No.	Basic price per PU (THB)
	7KM PAC3100 measuring device 3 and 4-conductor power supply systems (TN, TT, IT). They record energy values for main distribution boards, electrical branches or individual loads precisely and reliably, and also supply key measured values for assessment of the state of the plant. The 7KM PAC3100 measuring device is fitted with an integrated Modbus RTU interface via RS485, no expansion module is required.	Control panel instrument 96 mm x 96 mm screw connections for current and voltage connection AC/DC wide-range power supply unit U_{AUX} : 100 … 240 V AC ±10 %, 50/60 Hz 110 … 250 V DC ±10 % Measuring inputs U_e max : 3 AC 480/277 V, 50/60 Hz I_e: /5 A	7KM3133-0BA00-3AA0	
	7KM PAC3200 measuring devices The 7KM PAC3200 measuring device is fitted with an integrated Modbus TCP interface via Ethernet, no expansion module is required. • Precise energy measurement • Versatile system integration - Integrated Ethernet interface - Optional communication modules available - Multifunctional digital inputs and outputs - Limit monitoring	**Screw connection:** Control panel instrument 96 mm x 96 mm screw connections for current and voltage connection AC/DC wide-range power supply unit U_{AUX} : 95 … 240 V AC ±10 %, 50/60 Hz Measuring inputs U_e max : 3 AC 690/400 V, 50/60 Hz I_e: /1 A or /5 A	7KM2112-0BA00-3AA0	
	• Can be connected directly to power supply systems up to 690 V AC (UL-L) and CATIII without voltage transformers (with the exception of devices with power supply units with extra-low voltage) • Intuitive configuration software powerconfig included in the scope of delivery	**Screw connection:** Control panel instrument 96 mm x 96 mm screw connections for current and voltage connection AC/DC wide-range power supply unit U_{AUX} : 22 … 65 V DC ±10 % Measuring inputs U_e max : 3 AC 500/289 V, 50/60 Hz I_e: /1 A or /5 A	7KM2111-1BA00-3AA0	
		**Ring cable lug connection:** Control panel instrument 96 mm x 96 mm screw connections for current and voltage connection AC/DC wide-range power supply unit U_{AUX} : 95 … 240 V AC ±10 %, 50/60 Hz Measuring inputs U_e max : 3 AC 690/400 V, 50/60 Hz I_e: /1 A or /5 A	7KM2112-0BA00-2AA0	

Selection and ordering data

Picture	Overview	Version	Order No.	Basic price per PU (THB)
	7KM PAC4200 measuring devices The 7KM PAC4200 measuring device is fitted with an integrated Modbus TCP interface via Ethernet, no expansion module is required. • Precise energy measurement • Versatile system integration - Integrated Ethernet interface - Optional communication modules available - Multifunctional digital inputs and outputs - Limit monitoring	**Screw connection:** Control panel instrument 96 mm x 96 mm screw connections for current and voltage connection AC/DC wide-range power supply unit U_{AUX} : 95 … 240 V AC ±10 %, 50/60 Hz Measuring inputs U_e max : 3 AC 690/400 V, 50/60 Hz I_e: /1 A or /5 A	7KM4212-0BA00-3AA0	
	• Can be connected directly to power supply systems up to 690 V AC (UL-L) and CATIII without voltage transformers (with the exception of devices with power supply units with extra-low voltage) • Intuitive configuration software powerconfig included in the scope of delivery • Monitoring the plant status and the power supply quality - Basic information for evaluating the power supply quality - Logging of plant history in the form of operation, control and system-related events	**Screw connection:** Control panel instrument 96 mm x 96 mm screw connections for current and voltage connection AC/DC wide-range power supply unit U_{AUX} : 22 … 65 V DC ±10 % Measuring inputs U_e max : 3 AC 500/289 V, 50/60 Hz I_e: /1 A or /5 A	7KM4211-1BA00-3AA0	
	• Recording of the power range through power averaging (load profile) • Daily energy meters for apparent, active and reactive energy across 365 days for cut-off date assessment • Detection of gas, water, compressed air or other energy sources via pulse counter to the digital inputs • Can be expanded using modules to up to 10 digital inputs and 6 digital outputs • Counters for apparent, active and reactive energy for the precise detection of the power consumption of a partial process or manufacturing process • 10/100 Mbit/s Ethernet interface with gateway function for the easy connection of devices with serial RS485 interface via expansion module 7KM PAC RS485 to an Ethernet network • Comprehensive user-friendly indicators, such as user-defined displays, bar and status indicators, phase diagram and list and histogram graphics • Satisfies the accuracy requirements of class 0.2S high-precision meters used by power supply companies according to IEC 62053-22, which are normally reserved for exacting industrial applications	**Ring cable lug connection:** Control panel instrument 96 mm x 96 mm screw connections for current and voltage connection AC/DC wide-range power supply unit U_{AUX} : 95 … 240 V AC ±10 %, 50/60 Hz Measuring inputs U_e max : 3 AC 690/400 V, 50/60 Hz I_e: /1 A or /5 A	7KM4212-0BA00-2AA0	
	7KM PAC expansion modules for PAC3200 and PAC4200 7KM PAC Switched Ethernet PROFINET expansion module 7KM PAC PROFIBUS DP expansion module 7KM PAC RS485 expansion module		 7KM9300-0AE01-0AA0 7KM9300-0AB01-0AA0 7KM9300-0AM00-0AA0	
	7KM PAC expansion modules for PAC4200 7KM PAC 4DI/2DO expansion module		7KM9200-0AB00-0AA0	

3KC ATC5300 transfer control devices

Overview

3KC ATC5300 transfer control devices

Automatic transfer control via the 3KC ATC5300 transfer control device

The 3KC ATC5300 transfer control device, equipped with two motor-driven circuit breakers, serves as a transfer system that automatically or manually switches between two power supply systems in low-voltage power distribution applications.

In particular, the 3KC ATC5300 transfer control device is deployed everywhere where a power failure is especially critical, e.g. distributed power supply systems with UPS supply (e.g. air-conditioning of control cabinets), in industrial processes and the emergency power supply of public buildings, such as hotels.

Mode of operation

The 3KC ATC5300 transfer control device controls the transfer between the main and standby power supplies fully automatically, while incorporating set limit values and delay times. It detects fluctuations occurring in the main power supply quickly and switches to the standby power supply. The control device only switches to the standby power supply after it has ensured that the standby supply is delivering the required power supply quality. The device switches back to the main power supply taking into consideration the set parameters once the required power supply quality is available again. If the standby power supply and/or the main power supply is fed by a generator, the control device also offers a wide range of settings, such as a generator lead time, generator delay time, and generator start test at specified times.

The 3KC ATC5300 transfer control device can control air circuit breakers, molded case circuit breakers, switch disconnectors and contactors. The circuit breakers are controlled via the related motorized operating mechanisms.

Parameterizing and monitoring using 3KC ATC5300 software

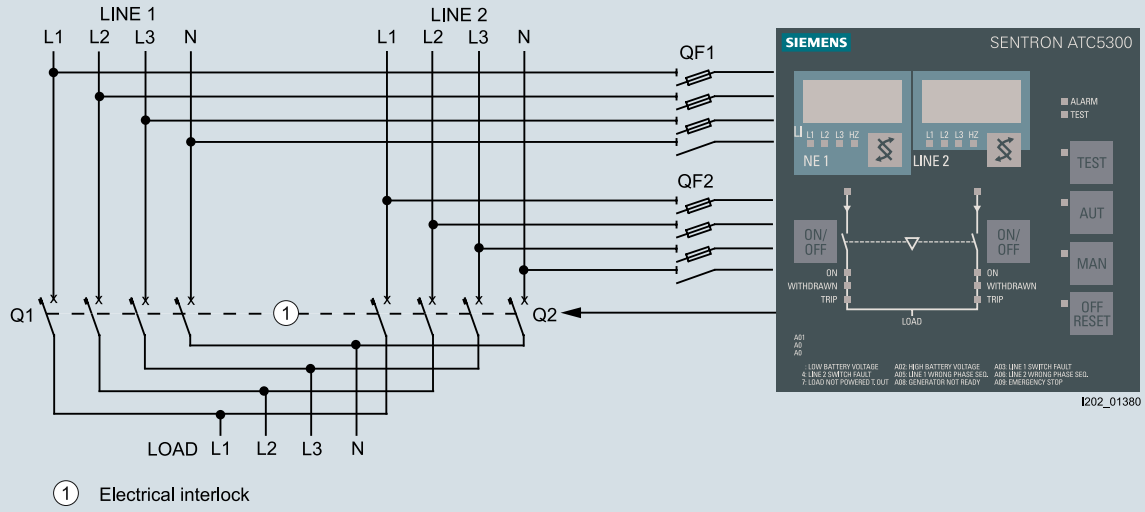
In addition to operation and parameterization on-site, you can also monitor and set the parameters of the controller using the 3KC ATC5300 software. The software offers a high level of convenience and quick access to all device settings, e.g. complex settings which occur when connecting generators.

Measured quantities

The 3KC ATC5300 records and monitors the following measured quantities:

Measured quantity		Basic setting	Limit value setting	Delay time	Can be deactivated
Rated system voltage U_n	V AC	100 ... 690	70% ... 98% (75% ... 100 %) [1]	0.1 s ... 900 s	–
			102% ... 120% (100% ... 115%) [1]	0.1 s ... 900 s	✓
Voltage asymmetry	%		1% ... 20%	0.1 s ... 900 s	✓
Phase failure	%		60% ... 85%	0.1 s ... 30 s	✓
Phase sequence		Left, Right	-	-	✓
Frequency	Hz	50/60	80% ... 100%	0.1 s ... 900 s	✓
			101% ... 120%	0.1 s ... 900 s	✓
Battery voltage U_b	V DC	12/24/48	70% ... 100% [2]	0 s ... 60 s	✓
			110% ... 140% [2]		✓

[1] Hysteresis value for enabling back-transfer
[2] Warning only, no switching
✓ Yes
-- No



1 Electrical interlock

Implementation of an automatic transfer system

Technical specifications

		ATC5300
Auxiliary supply		
Rated voltage U_n		
• AC	V AC	220 ... 240
• DC	V DC	12/24/48
Operating range		
• AC	V AC	187 ... 264
• DC	V DC	9 ... 70
Frequency	Hz	45 ... 65
Max. power consumption at U_n = 240 V AC	VA	9
Max. power loss		
• At 240 V AC	W	6.3
• At 48 V DC	W	4.1
Max. power consumption		
• At 12 V DC	mA	300
• At 24 V DC	mA	180
• At 48 V DC	mA	90
Safety in the event of short interruptions	ms	50
Measuring inputs		
Max. rated voltage U_n		
• Phase-phase	V AC	690
• Phase-neutral	V AC	400
Phase-phase measuring range	V AC	80 ... 800
Frequency ranges	Hz	45 ... 65
Measuring method		RMS value (true RMS)
Measuring input impedance		
• Phase-phase	M	> 1.1
• Phase-neutral	M	> 0.5
Connection method		Single-phase, two-phase, or three-phase system
Measuring errors		0.25 %, value range digit
Digital inputs		
Number of inputs		8, 6 of which are programmable
Type of input		Negative
Input current	mA	0
Input signal		
• Logic state "0"	V	1.5 (typical 2.9)
• Logic state "1"	V	5.3 (typical 4.3)
Input signal delay	ms	50
Relay outputs		
Number of outputs		7, 5 of which are programmable
Contact configuration		
• 2 relays with 1 NO contact		12 A, at 250 V AC (AC1)
• 3 relays with 1 NO contact		8 A, at 250 V AC (AC1)
• 2 relays with 1 CO contact		8 A, at 250 V AC (AC1)

		ATC5300
Reversing time of control device	s	1
Communication cables		
RS 232 serial interface • Programmable transmission rate • Connection through RJ6/6 connector	bit/s	1200 ... 38400
RS485 serial interface • Optically insulated • With programmable transmission rate • Connection through plug-in terminals	bit/s	1200 … 38400
Real-time clock		
Energy storage		Stored-energy capacitors
Operating time without feeding voltage	Days	Approx. 12 ... 15
Insulation voltage		
Rated insulation voltage U_i	V	690
Ambient conditions		
Operating temperature	°C	-20 … +60
Storage temperature	°C	-30 … +80
Relative humidity	%	< 90
Max. pollution degree		3
Overvoltage category		3
Measuring category		CAT III
Connections		
Terminal type		Removable/pluggable
Cable cross-section	mm 2	0.2 ... 2.5 (24 ... 12 AWG)
Max. tightening torque	Nm	0.5 (4.5 lbf·in)
Enclosure		
Enclosure material		Thermoplastic LEXAN 3412R
Version		Door installation
Degree of protection		IP41 front, IP20 rear
Weight	g	950
Certificates and conformity		
ATS/ATSE standard		Complies with the ATS/ATSE standard IEC 60947-6-1, in combination with 3VL or 3WL [1] UL 508; C22.2 No. 14
Environment classification:		3K6 acc. to IEC 60721-3-3 3B2 acc. to IEC 60721-3-3 3C3 acc. to IEC 60721-3-3 3S2 acc. to IEC 60721-3-3 3M6 acc. to IEC 60721-3-3
EMC		Acc. to IEC 60947-6-1

[1] For more information, see manual at: www.siemens.com/lowvoltage/manual.

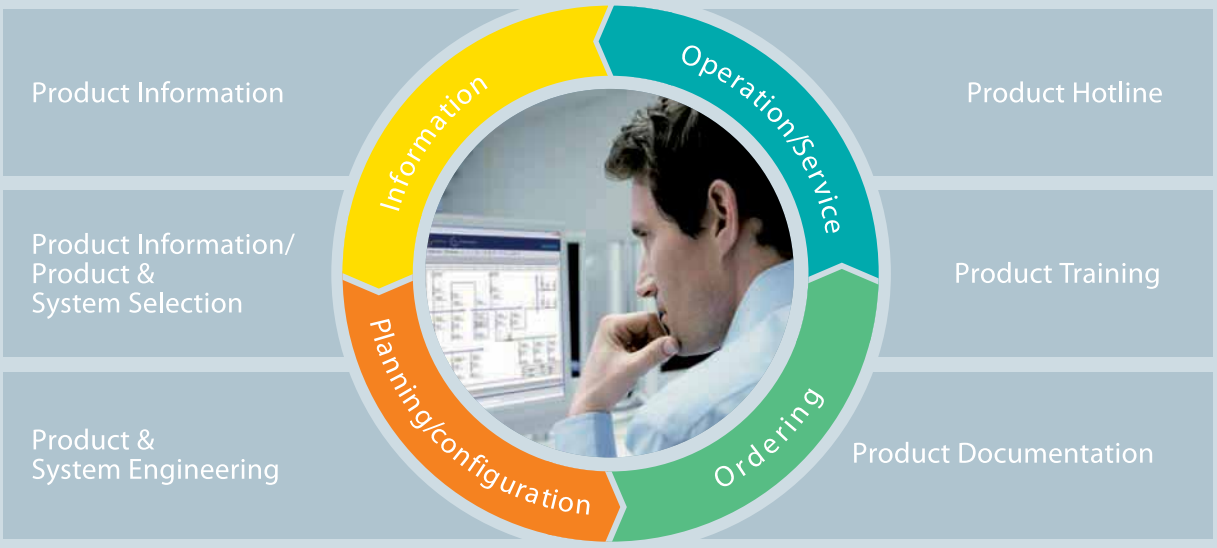
3KC ATC5300 transfer control devices

Selection and ordering data

	Version	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg	Order No.	Basic price per PU (THB)
						Screw connection	
3KC9000-8TL30	3KC ATC5300 transfer control devices Control panel instrument 144 x 144 x 94 mm with the following features: • Screw terminal connection • AC/DC power supply unit • 220 … 240 V AC, 45 ... 65 Hz • 9 ... 70 V DC • Rated setting range: 100 … 690 V AC	1	1 unit	143	1.015	3KC9000-8TL30	
3KC9000-8TL70	3KC ATC5300 software Software for setting parameters and remote control operations, incl. connection cable from control device to PC, cable length 1.8 m • CD incl. software and manuals • Minimum hardware and software requirements: - Pentium, 64 MB RAM - COM interface (serial RS 232) - CD drive - Windows 95/98/2000/XP/Vista/Windows 7	1	1 unit	143	0.223	3KC9000-8TL70	

Notes

Notes



Everything from a single source – from initial information, planning, configuration and ordering through to commissioning, operation and technical support.

Comprehensive support from A to Z

For more efficiency on all counts – comprehensive support and quick and easy access to service-proven tools at any time via the Internet.

Product Information	
Website	Fast and selective information on the subject of low-voltage power distribution: www.siemens.com/lowvoltage
Newsletter	Keep up to date with our future-oriented products and systems: www.siemens.com/lowvoltage/newsletter
Product Information/Product & System Selection	
Information and Download Center	Latest catalogs, customer magazines, brochures, demo software and campaign packages: www.siemens.com/lowvoltage/infomaterial
Industry Mall	Comprehensive information and ordering platform for the Siemens industry shopping basket: www.siemens.com/lowvoltage/mall
Product & System Engineering	
SIMARIS Software Tools	Support with the planning and configuration of electrical power distribution: www.siemens.com/simaris
Configuration software ALPHA SELECT	Quick and easy configuration of distribution boards with products from the Siemens Industry shopping basket: www.siemens.com/alpha-select

Product Documentation	
Service & Support Portal	Comprehensive technical information - from planning to configuration through to operation: www.siemens.com/lowvoltage/support
CAx Data	Compilation of the commercial and technical master product data: DVD Order No.: E86060-D1000-A207-A6-6300 (via Industry Mall) www.siemens.com/lowvoltage/support
Image Database	Collection of product photos and graphics such as dimensional drawings and internal circuit diagrams: www.siemens.com/lowvoltage/picturedb
Product Training	
SITRAIN Portal	Comprehensive training program on our prod - ucts, systems and engineering tools: www.siemens.com/lowvoltage/training
Product Hotline	
Technical Support	Support for all technical queries concerning our products: E-mail: support.automation@siemens.com www.siemens.com/lowvoltage/technical-support

Siemens Ltd.
Charn Issara Tower II
2922/333 New Petchburi Road
Bangkapi, Huaykwang,
Bangkok 10310 Thailand
Tel. +66 2715 4000

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